There is Something Special About Large Investors

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Publication date:
2014

Discussion paper

THERE IS SOMETHING SPECIAL ABOUT LARGE INVESTORS: EVIDENCE FROM A SURVEY OF PRIVATE EQUITY LIMITED PARTNERS

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January 2014

TILEC Discussion Paper No. 2014-010
CentER Discussion Paper No. 2014-016

ISSN 2213-9532
ISSN 2213-9419
http://ssrn.com/abstract=2399373

Understanding Society

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We show that investors with more dollar amount allocated to private equity conduct more thorough due diligence and have different investment criteria. The fraction allocated to private equity, the organization's total asset under management, and other investor characteristics that broadly capture prestige, experience, and long-term relationship do not explain these differences in effort and beliefs. We also document several novel facts that contribute to opening the black-box of the investment process in alternative asset classes. An implication of our results is that the emergence of gigantic institutional investors may come with a radical change in the beliefs and actions of the *marginal* investor.

Keywords: Institutional Investors, Investor Heterogeneity, Due Diligence Private Equity.

JEL Codes G20, G22, G23, G24.

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We are grateful to the many investors who provided us with the data. We especially thank James Bachman and Peter Cornelius for their help in designing the survey. We thank Martijn Cremers, Cyril Demaria, Ulrich Hege, Victoria Ivashina, Tim Jenkinson, José Liberti, Josh Rauh, David Robinson, Annette Vissing-Jorgensen, and seminar participants at the Universities of Nottingham and Tilburg for valuable comments on the paper. Our research assistants provided invaluable help in collecting the data: Jan Peter Gabrielse, Marlon de Haas, Femke Helgers, Joris Hoendervangers, Edvardas Moselka, Robin Rijnders, Jacco Vogels, and especially Yves Kessels. We gratefully acknowledge grants from CAREFIN and EIBURS.

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Abstract

We show that investors with more dollar amount allocated to private equity conduct more thorough due diligence and have different investment criteria. The fraction allocated to private equity, the organization's total asset under management, and other investor characteristics that broadly capture prestige, experience, and long-term relationship do not explain these differences in effort and beliefs. We also document several novel facts that contribute to opening the black-box of the investment process in alternative asset classes. An implication of our results is that the emergence of gigantic institutional investors may come with a radical change in the beliefs and actions of the *marginal* investor

There are now nine pension funds and eleven sovereign wealth funds in the world with more than $100 billion under management, compared to not a single one two decades ago.[1] The emergence of such gigantic institutional investors naturally raises the issue of economies of scale; but it more broadly raises questions on capital market equilibrium. Large investors may act differently and their rise may thus affect the way capital markets function; for example, the degree of market efficiency. Large investors may also affect the overall allocation of capital as the increase in capital at the large end of the investor spectrum has coincided with an increase in the amount of capital allocated to 'alternative assets' (in particular, private equity).[2]

The literature tackling issues related to investor size focuses mainly on (dis)economies of scale for financial intermediaries: Chen et al. (2004) in mutual funds, Fung et al. (2008) in hedge funds, and Lopez-de-Silanes, Phalippou, and Gottschalg (2013) in buyout funds. A different angle is provided by the recent studies of Dyck and Pomorski (2012), and Andonov, Bauer, and Cremers (2012). They find an out-performance of larger pension funds, especially in private equity. In other asset classes (fixed income, listed equity), they find diseconomies of scale. What is not yet understood is the source of this surprising out-performance in private equity by large investors. Do large investors conduct more thorough due diligence, have better access to top funds, are offered better terms? Do they select funds differently? Is size their key distinctive attribute or is it some other characteristics such as experience?

To answer these questions, we conduct a worldwide survey of private equity investors.[3] We present the survey to investors as a unique opportunity to (anonymously) benchmark their

[1] More than half of these twenty giant investors have been created over the last twenty years.

[2] Large investors are the main providers of capital in private equity, although the $1 trillion Japanese GPIF has not invested yet in private equity and the $750 billion Norwegian GPFG is considering investing in that asset class.

[3] Groh, Liechtenstein, and Canela (2007) conduct a similar survey on how investors select Venture Capital funds.

due diligence practices to that of other investors (for free).[4] In total, we have contacted about 2,000 "Limited Partners" – the name given to private equity investors – from the Limited Partners Directory published Private Equity International (PEI), a consultancy. We have obtained 272 sufficiently complete responses spanning 30 countries.[5] To our knowledge, this is the largest survey of private equity investors to date in terms of number of respondents, geographical coverage, and scope.

The main question we study is whether differences across investors in both effort and beliefs that underlie investment choices are related to size (i.e. dollar amount invested in private equity) or to some other characteristics. The literature points out a number of characteristics that should be important drivers of investor heterogeneity.

First, in asset classes characterized by a large asymmetry of information, such as private equity, *investor's experience* may be a distinctive factor. It is often argued that early movers in the private equity industry are at an advantage, with the endowments of Yale University and Harvard University often cited as examples (cf. Swensen (2000), Sensoy, Wang, and Weisbach (2013)).

A second view argues that it is what matters most is the *parent*'s organization characteristics. For example, Lerner, Schoar, and Wongsunwai (2007) find that endowments outperform and conjecture a number of advantages that endowments have over other types of investors when it comes to investing in alternative asset classes in general, and in private equity in particular.[6] But other parent's characteristics may matter. An 'old' parent (e.g. a 200 years old

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[4] The survey is anonymous in that we do not reveal the identity of the respondents nor is it possible to infer from any of our statistics the identity of any of the respondents. Respondents may leave an email address if they want to receive a copy of the report. Over 75% of the respondents did so.

[5] This 12% response rate is reasonably high for academic surveys; e.g. the survey of CFOs of Graham and Harvey (2001) has slightly less than a 10% response rate.

[6] However, a recent study by Sensoy, Wang, and Weisbach (2013) looks at a longer period and shows that endowments no longer outperform.

insurance company) may be a prestigious client to have for a private equity fund. A parent with a large amount of asset under management may represents a larger pool of 'potential' money giving the investor higher bargaining power.

A third view, articulated by Dyck and Pomorski (2012), and Andonov, Bauer, and Cremers (2012) is that there are large fixed costs of investing in complex asset classes such as private equity, and thus the dollar amount invested in private equity (size) should be the main distinguishing characteristic.

A fourth view is that it is not the investor's organization that is important, but it is the characteristics of the individuals who manage the capital that drive any observed heterogeneity − for example, their experience in the industry or their personal network (Kaplan, Sensoy, and Strömberg (2009)).

Our empirical analysis analyzes how these investor characteristics relate to differences across investors in effort (screening, monitoring, and contracting) and in the beliefs that underlie investment choices. In particular, we pay attention to the differences between small and large investors in order to lay out potential explanations for the outperformance of large investors in private equity. By the same token, our analysis offers a rich description of the private equity investment process. This process is still largely un-documented due to the difficulty of obtaining systematic data.

We first look at organizational variables. We find that the private equity investing team is thinly staffed, with 15 funds and $250 million of capital per professional employee on average. The investment committee is relatively small, with less than seven members on average. Most investment committees take decisions by consensus, and their decisions cannot be vetoed by others in the organization. The PE team is often responsible for loosely related asset classes such as hedge funds (26% of respondents) and real estate (37% of respondents). Half of the investors have a performance-related bonus, which is particularly interesting in light of the difficulties in measuring performance in alternative asset classes. Employees in organizations with more private

equity capital supervise fewer funds, are more likely to supervise only private equity (and not hedge funds, or real estate) and to have a performance-related bonus.

We then turn to measures of investor effort: screening, contracting and monitoring effort. Investors spend on average 26 days on due diligence for a first-time fund and 16 days for a reinvestment decision. Half of the investors always interview fund portfolio company executives and use their own model to evaluate funds reported Net Asset Values. On the contracting side, about two-thirds of the investors benchmark the terms of the Limited Partnership Agreements, and spend 11 days on that activity on average. Half of the investors always negotiate the terms; and some always obtain the Most Favored Nation clause (38%), which guarantees that they have received the best terms among all investors. A quarter of the investors never get side letters. For monitoring, we observe that investors have on average one fund advisory board seat for every three funds they invest in, and attend on average nearly 80% of the board meetings. One third of the investors never visit the portfolio companies they are invested in. 57% of the investors have co-invested alongside private equity funds they are invested in.

In regression analysis, we find that investor size is significantly related to each of the variables that measure effort. Other investor characteristics play no role. Investors with larger allocations to private equity spend more time screening funds, are more likely to receive side letters, to visit portfolio companies, to interview, to visit portfolio company executives, to use their own models to evaluate funds reported Net Asset Values, to co-invest with funds and hence pay lower fees; they are also more often on their funds' advisory boards, and have better attendance.[7]

Next, we find that size also plays an important role when we study differences in the investment criteria. We ask investors to rate different investment criteria when they invest in

[7] The higher level of effort could be a result of larger investors being better staffed, or providing incentive pay to their managers. When we add these variables investor size remains strongly related to effort. The same happens when we add other variables capturing human resources management or organizational structure.

different types of funds: first-time funds, investments in funds by seasoned private equity managers, and re-investments. A total of 50 criteria are rated, and we find that investor size is by far the strongest and most robust characteristic capturing differences in beliefs. Larger investors pay more attention to the proposed investment strategy and the diversification benefits. They also pay a bit more attention to fund managers' turnover rate and network. Small investors pay significantly more attention to i) the quality of the fund managers education, ii) the possibility of generating business for other divisions of the parent's organization, iii) the advisor/gatekeeper opinion, and iv) the impact of their decision on follow-on fund access. Again, other investor characteristics do not explain as much the differences in investment criteria.

A legitimate concern is that investor size is partly endogenous, and our results could then be explained by reverse causality. To address this concern, we replace current size with size in year 2000. Despite a decrease in number of observations, economic magnitudes are similar and statistical significance remains. In addition, we ask investors how much their size depends on their own past performance (versus the overall industry performance). Results are similar if we exclude investors whose allocation depends most on their own past performance. We also exclude fund-of-funds because their size depends most on their past returns. Again, our results are confirmed, and we that they are unlikely to be explained by reverse causality.

To sum up, in addition to opening the black-box of investors' organizational and decision-making processes in a major alternative asset class, this paper shows that investor size is a sufficient statistic to capture multiple aspects of investor heterogeneity. It is important to note that throughout, we control for the parent organization's asset under management. Hence, the effect of size is unlikely to be driven by higher bargaining power or potential amount of capital to be deployed. Our results are also unchanged if we control for the fraction of the overall portfolio allocated to private equity. In a nutshell, what our results say is that if the Norwegian sovereign wealth fund invests 1% of its capital in private equity (i.e. $7.5 billion) it is expected to be 'just like' Yale with 30% of its $20 billion fund allocated to private equity. What drives differences

between investors in our sample is only the dollar amount invested. We thus expect the same type of due diligence, same type of terms, same type of investment criteria between these two investors despite the difference in history and asset allocation choices.[8]

The rest of the paper is organized as follows: Section 2 describes the data and the construction of our variables. Section 3 provides empirical evidence on investors' organizational structure. Section 4 provides empirical evidence on investor effort. Section 5 focuses on differences in investor beliefs. Section 6, concludes by discussing the implications of our results.

2. Data and investor characteristics

We conduct an online survey of Limited Partners (LPs), i.e., private equity (PE) investors. Our questions relate to how investors carry out their due diligence for investments in PE funds, which are run by asset managers that are called General Partners (GPs). These LPs may belong to a "parent organization", like a bank, insurance company, or corporation. In this section, we describe the survey and the sample construction. Next, we provide descriptive statistics on key investor characteristics and use them to assess sample representativeness.

[8] This finding has actually been echoed recently in an interview of Bruce Feldman, former head of alternatives at the Pennsylvania State Employees' Retirement System (August 22, 2012): "One of the more significant changes he saw in the industry during his time at the system was the gradual divergence of certain limited partners from the rest of the pack, separated by their ability to get favourable treatment from general partners not available to other investors. "The ability to influence the terms of the transaction changed. Money always talked, but [it used to be], the earlier one could get involved with the GP … the more influence you would expect to have," Feldman said during a recent conversation with *Private Equity International*. "The longer I did the job, the more I realised the industry evolved. Key LPs emerged who were much more influential in how the partnership was structured. In many cases they were able to negotiate more favourable arrangements for themselves, for example, in side vehicles or other arrangements," Feldman said. Feldman's observation reflects a growing tension among LPs over the issue of big investors having access to better terms and conditions, co-investment opportunities and even separate accounts customised specifically for them." (http://www.privateequitymanager.com/Article.aspx?article=68923)

2.1. Survey design

The survey, which we designed with a senior LP executive, is divided into eight parts. We offer it to investors as a unique opportunity to (anonymously) benchmark their due diligence practices against that of a large set of other investors (for free). Respondents do not, therefore, have clear incentives to misrepresent any information.

To construct our sample of respondents, we used the 2008 Directory of Limited Partners published by Private Equity International (PEI). We emailed all of the nearly 2,000 LPs listed in the directory to introduce the survey and to provide the website address for responses.[9] After sending the email, we contacted each investor by phone to ask whether they received the email, intended to participate or had any questions.[10] Respondents to the survey could leave their contact details; two thirds have done so. When investors leave their contact details but do not answer some of the questions, we follow up by phone.

We have received 272 sufficiently complete responses (see below for details), giving a response rate of 13.8%. This compares well to other academic large-scale surveys. For example, the CFO survey of Graham and Harvey (2001) had a response rate of 8.9%. We believe that this relatively high response rate reflects a significant interest in the investor community about how others perform due diligence and the paucity of research on this topic.

2.2. Main investor characteristics and sample representativeness

From the first part of the survey, we obtain LP characteristics that could explain heterogeneity in investment behavior. Four of these characteristics are also available in PEI and can help us gauge

[9] The Directory contains several organizations that are not LPs, like GPs or investors that do not invest (or have stopped investing) in private equity. We do not consider them as part of the population. The resulting population consists of 1,973 LPs.

[10] This could not be done in countries where English is not well spoken and where we did not have a research assistant fluent in the local language (e.g., Arab-speaking countries). However, these countries have very few investors.

the representativeness of our sample. In this sub-section, we motivate and describe these four investor characteristics.

The first characteristic we collect is "LP type". This is motivated by the study of Lerner, Schoar, and Wongsunwai (2007) who point out that an important source of heterogeneity across institutional investors is their organizational type. They argue that endowments benefit from more flexibility when investing and that this is an important advantage mainly in asset classes such as private equity. We offer twelve choices for the organization type and create five broad types from these entries: i) Pension funds, ii) Fund-of-funds, iii) Endowments (which include foundations), iv) Financial institutions (banks, insurance companies, and asset managers), v) Other (mainly sovereign wealth funds, family desks, corporate entities).

The sample splits fairly equally across these five types, as shown in Table 1 – Panel A. Each of the largest two types (financial institutions and pension funds) represents 23% of the sample. The smallest type, endowments, represents 14% of the sample. Compared to the PEI universe we have slightly more pension funds (23% versus 19%), more fund-of-funds (18% versus 11%), and slightly fewer investor in the financial, endowments and "other investor types" categories.[11] We conjecture that funds-of-funds may find our survey more important because due diligence is at the core of their business. For corporate investors, it is often difficult to locate and reach out to the people investing in PE within the organization. Overall, all categories are well represented.

The second main LP characteristic we look at is the country of location of the PE investment committee (or the person taking the PE investment decisions). Investors in North America (USA and Canada) are likely to have access to a better labor market, or may be seen as more prestigious, etc. Location is therefore a potential source of heterogeneity across investors. It

[11] In this last category we mainly lag behind among "corporate investors."

is also the case that the majority of the PE funds are based in North America (even more so on a value-weighted basis). This geographical and cultural proximity may affect investor's behavior.

A feature of our study is that it provides a global perspective, spanning 30 different countries. Because we cannot include each country separately, we pool countries to form regions. As shown in Table 1 – Panel B, we distinguish between North America (USA and Canada), continental Europe (i.e. Europe excluding the UK and Scandinavia), Scandinavia, the UK, Australia, Japan, and the Rest of the World. North American investors are the largest group with 33% of the respondents, continental Europe with 26%, Scandinavia with 13%, and the UK with 10%. Next come two countries with a weight of 6% and 5% (Australia and Japan). The rest of the world accounts for 7% of the sample and includes Iceland, Israel, Mexico, New Zealand, Singapore, South Africa, and South Korea.

Compared to the universe (the PEI directory), we have fewer North American investors and more European investors (continental Europe and Scandinavia). For the UK, Australia and Japan, our coverage is very close to that of the PEI directory. For the rest of the world we have a lower fraction than the PEI directory, which is mainly explained by the fact that we did not have research assistants who could speak the local languages in Arab and most Asian countries. Our high response rate in Scandinavia and Australia is mainly due to a higher willingness of investors in these countries to answer the survey. In North America we had difficulties reaching out to investors but those investors still represent the main group in our sample.

The third LP characteristic we collect is the amount of capital invested in private equity, which we label "LP size". We split the sample into five about equal groups (Table 1 – Panel C): those below $100 million in size, between $100 million and $250 million, between $250 million and $600 million, between $600 million and $2 billion, and above $2 billion. This shows the wide dispersion in total capital allocated to private equity across investors. One investor in five

has less than $100 million invested in private equity while another one in five investors has more than $2 billion invested in private equity.

Compared to the universe (the PEI directory), we have fewer very small investors (those with less than $100 million in PE). This group is less well staffed and spends much less resources in their investment process. Hence filing our survey is more costly for them and they may see little benefit in participating. In the other size categories, we match the proportions of the PEI directory quite closely.

The fourth LP characteristic we collect is the number of years of PE investing (measured in 2008), which we label "LP experience". This is a natural variable because it is often argued that having long-standing relationships is important in PE in order to access the best funds and to have the know-how to select them (Swensen (2000)). In addition, more experienced investors may behave differently as they may perform "better" due diligence. They may also need less effort because they are more productive. Our sample and the PEI universe are very close on that dimension (Table 1 – Panel D), with an under-representation of very long-established investors (over 15 years of experience).

The other LP characteristics we collect and in particular those related to the parent organization (AUM and experience) are not available in PEI and are described in the next section.

< Table 1>

3. Organization Structure and Human Resources management

3.1. Descriptive statistics

Table 2 shows descriptive statistics for the investor characteristics that are not covered in the PEI directory. It focuses on what can be broadly referred to as organizational structure and human resources management. Panel A shows statistics for continuous variables, and panel B shows statistics for binary variables.

As we study LP size, it is important to control for the Asset Under Management (AUM, in US$) and the experience of the LP's Parent organization, defined as the number of years it has been in operations in 2008. They can be seen as capturing bargaining power and prestige respectively. In Table 2 – Panel A, we observe a wide range of parent AUM in our sample, with the 25th percentile at $0.59 billion and the 75th percentile at $14 billion. Similarly, parent experience ranges from 9 years (25th percentile) to 43 years (75th percentile).

In terms of staffing, we find that the average private equity investment team is composed of 7.6 (full time equivalent) investment professionals, with an obvious skew in the distribution. The 25th percentile investor has only 1.5 investment professionals, and even the 75th percentile investor has only 7 investment professionals. However, the number of investment committee members is more narrowly and evenly distributed with an average of 6.8 and inter-quartile range of 4 to 8 people. Interestingly, note that this 4 to 8 investment committee members range is similar to what has been identified in the literature as the optimal size for corporate boards (see Adams, Hermalin, and Weisbach (2010)).

We compute the allocation to private equity as the ratio of LP size to parent AUM. It varies widely with a quarter of the investors having less than 4% allocation to private equity while another quarter of the investors have more than 75% allocated to private equity. The high end of the distribution is driven by fund of funds with 100% of their assets allocated to private equity.

The number of funds LPs invest into is interesting in light of the recent debate on investors decreasing the number of funds they hold. The inter-quartile range here is 10 to 60. This seems quite large, given the small number of investment professionals mentioned above. Taking the ratio we find that on average one professional is responsible for 15 funds. We can look at staffing from another angle by considering the amount of dollars per professional: we find a rather high average of $250 million per person. This distribution seems quite skewed as well since 25% of the organizations operate with less than $51 million per professional.

Next we ask for the experience of the members of the private equity investment committee, defined as the number of years they have been in the industry. We find an average of 11 years; the dispersion here is not very marked. We also ask how many people have left the investment committee over the previous five years; turnover is the ratio of this number to the number of the investment committee members. This is motivated by the conjecture in Lerner, Schoar, and Wongsunwai (2007) that certain types of organizations (e.g. pension funds) are more prone to staff turnover, with a negative effect on decision-making. More than a quarter of the organizations have had no turnover at their investment committee, with the average having one in four members leave their job over the previous five years. Finally, the last variable in Panel A is the fraction of fund of funds in the portfolio. Many investors have none but the average investor has 37% of its funds that are fund of funds.

Panel B shows statistics on a number of binary variables. We find that a striking 26% of the private equity teams are also responsible for hedge funds – an asset class that has very little if any overlap with private equity. A higher fraction of the teams (37%) are also responsible for real estate investments, but one can argue that there is some overlap with private equity because the investment structure is similar (private partnerships).

The large majority of organizations have an investment committee (81%), and most committees are autonomous (78%), meaning that their decision cannot be modified or vetoed by anyone external. Few committees vote with majority rule (24%); most require a consensus decision.

We also obtain information on compensation policy. Almost one organization in two offers compensation pegged to financial performance; interestingly, this holds both for the investment committee members but also for non-members. In 40% of the cases the variable part of the salary can be larger than the fixed part of the pay for the investment committee members (and in 27% of the cases for other professionals). This fact is quite recent, as 31% of the respondents say that the compensation policy has changed over the past ten years and bonuses

were introduced. This shows a very important change, since compensation constitutes a key incentive for investment decisions.

Such reliance on performance related pay may be surprising because returns of private equity funds are notoriously difficult to measure, and they take a very long time to materialize. Interim Net Asset Values (NAV) reported by fund managers are thus likely to play a role in the bonus of the investing team. Given that the calculation of the NAV contains some element of subjectivity, this can lead to conflicting interests in that both the PE investing team and the fund manager may accept inflated NAVs in some circumstances.

< Table 2 >

3.2. Regression analysis

We now look at how these organizational and HR characteristics relate to key investor characteristics. Throughout the paper we run regressions which use a set of ten core control variables that capture the key investor characteristics discussed above: LP size (i.e. amount allocated to private equity); a dummy variable for the LP being i) a pension fund, ii) a fund-of-funds, iii) an endowment, iv) a financial company, v) based in North America, and vi) based in Continental Europe; LP experience, Parent AUM, Parent experience. These variables are defined in the previous section and are described in Table 1 and Table 2 – Panel A.[12]

There is a large number of variables that come out of the survey and we want to study how they relate to the key investor characteristics. However, it is unlikely that significant or interesting results will emerge when there are too little observations or not enough dispersion in a variable's distribution. We thus show results only when there are more than 100 valid observations; for dummy variables we show results only when the fraction of 'yes' is between 25% and 75%.

[12] Variables relating to size, number of employees/funds and experience are log-transformed to reduce skewness.

Table 2 – Panel C shows the results from the first five regressions. The dependent variables are all taken from Panel A: number of funds per investment professional; dollar invested per investment professional; average PE team experience; Investment Committee turnover; and fraction of fund-of-funds. We run Tobit regressions because these variables are truncated. OLS results are very similar (unreported).

We find that larger investors are better staffed, i.e., they have fewer funds under management per investment professional. In contrast, pension funds and endowments appear to be less well staffed. All else being equal, private equity teams that are more experienced or belong to a larger parent are less well staffed. We also find that larger investors tend to have slightly more experienced teams while fund-of-funds and American investors have significantly more experienced teams. There are no significant differences across investors in terms of turnover; and unsurprisingly, larger investors hold less fund-of-funds.

Table 2 – Panel D shows the results from five Probit regressions. The dependent variables are the organizational and HR variables shown in Panel B. Clearly, the leading explanatory variable for all these characteristics is investor size. Larger investors are less likely to have PE teams involved in either hedge funds or real estate; such pooling of tasks is also common with pension funds and endowments. Larger investors are more likely to offer performance related salaries to both Investment Committee member and to other professionals in the organization. Larger investors are also more likely to have introduced the bonuses in recent years. Endowments are less likely to have such bonuses, as well as European LPs.

4. Effort level: Screening, Contracting and Monitoring

In the previous section, we have established that there are wide disparities across investors in terms of both organizational structure and human resource policies; and that these differences are strongly related to investor size. We now turn to the screening, contracting and monitoring activities of investors. As in the previous section, we look first at descriptive statistics to see what is in the 'black-box' and then study cross-sectional differences.

4.1. Screening effort

We begin by asking investors how long they spend on due diligence when deciding to invest into a fund (in full time equivalent terms). We ask this question separately for i) an investment in first-time fund; ii) a first investment in a new fund of a seasoned private equity firm; and iii) for a reinvestment (called "re-up") in new funds of a private equity firm in which the LP had already invested. The three figures are highly correlated across investors and the average time is ordered in a logical way. Table 3 Panel A shows that on average 26 days (full time equivalent) are spent for an investment in a first-time fund, 20 days for a first investment in a seasoned PE firm, and 16 days for a re-up; full-time employee equivalent is in number of days, summing up internal and external (i.e. outsourced) days. Hence the number of days decreases as the asymmetry of information and/or the difficulty to evaluate a PE firm goes down. The inter-quartile range is strikingly wide and similar across the three types of situation. For example, for a first-time fund it is 10-30 days.[13] This shows that there are significant differences in the effort levels exhibited by different LPs.

An important challenge in the evaluation of a track record is the valuation of Net Asset Values (NAVs), i.e., the valuation of unrealized investments in portfolio companies. For

[13] We also ask for the fraction of due diligence that is quantitative (mean is 37%), the fraction of funds that go through due diligence (mean is 26%), and the fraction of investment propositions they accept (mean is 10%).

example, Kohlberg, Kravis and Roberts (KKR), one eponymous buyout firm, shows in its annual report that 80% of all of their investments in dollar terms are un-exited (source: SEC filings). This means that the past return that LPs see is made up for 80% of unrealized investments. Importantly, these valuations are subjective. KKR, for example, explicitly state that they use an internal model. Hence prospective investors may want to re-evaluate that NAV. Table 3 – Panel A shows that 30% of investors do so.[14]

One of the key elements LPs consider when deciding to invest is past performance. This is provided by the GP in the fund-raising prospectus. However, it is usually the case that the performance figures so provided are highly aggregated. For example, a GP may have pooled together investments in venture capital and buyout and is now raising a buyout fund. The investor may want to separate these two track records and re-compute returns. Another such situation arises when a GP with high returns in its early funds but not in its later funds would have an incentive to pool all the funds together and give only one aggregate performance number.[15] In that case, one would want to know the performance of each fund separately. Another example is that some GPs may include in the past performance figure the returns of the investments that some of the partners supervised when working for their previous employer: the investor may want to take these figures out of the track record. An investor also told us that the dates of cash flows need to be checked because it is not always the date at which actual cash flows occur that is used (e.g. announcement dates may be used in some cases). For all these reasons, an LP may want to re-compute past performance. We thus ask whether investors use the underlying data given by the GP (or could be requested to the GP) to compute performance statistics themselves.

[14] Moreover, 56% of investors just use the NAV given by the GP, and 15% ignore unrealized investments.

[15] This is because when using IRR as performance metric, this pooling generates a high overall return.

Table 3 – Panel A shows that as many as 57% of the LPs always compute their own measure of GP past performance. Only 9% of the investors never do so.[16]

Another common due-diligence item for investors is to interview executives of portfolio companies. The motivation for investors is to gain insight on whether the GP adds value to the portfolio companies. Also, they can assess whether the GP has a good reputation with entrepreneurs and executives in general, an important factor for assessing the quality of future deal flows. Table 3 – Panel A shows that 43% of the investors "always" interview portfolio company executives (48% say they sometimes do it, and 9% say they never do it).

Table 3 – Panel B shows regression analysis similar to those presented in Table 2.[17] Notice that, like in all other regressions, LP experience addresses the concern that size might proxy for earliness in investing in private equity funds. We find that LP size is significantly related to all of the six characteristics for which we have enough observations and dispersion.[18] Larger investors spend more time on due diligence, compute their own NAV and past performance, and are more likely to interview portfolio company executives. No other explanatory variable is significant across the six specifications. We also note that pension funds are less likely to do their own NAV and past performance calculations, while funds of funds are more likely. Interestingly, more experienced LPs spend less time on first funds, a possible indication that they have accumulated valuable screening experience; they also are less likely to interview executives at portfolio companies.

< Table 3 > < Table 4 >

[16] We also ask how often they benchmark the GP track record: 77% of the investors reply that they always do.

[17] The three variables expressed as a fraction are not included as dependent variables in Table 3 because they do not capture effort.

[18] We use an ordered probit for the multiple choice variables (always, sometimes, never), a Probit for binary variables and a Tobit for the continuous variables.

4.2. Contracting effort

The contractual rights of an investor in a private equity fund are governed by the Limited Partnership Agreement (LPA).[19] The LPA is an important document and details the fees and covenants. Because the fees can have a large impact on performance and because the inclusion and exclusion of certain covenants can significantly impact potential conflicts of interest, comparing the LPAs of different funds is an important exercise. It is also a costly one, given that LPAs are quite technical and lengthy documents (typically over 100 pages). Table 4 – Panel A shows that 62% of investors benchmark the LPAs; and those who do spend an average of 11 days on it, which is about half of the overall time spent on due diligence, as shown in the previous section.

From the late 1990s, many LPs have obtained special rights that are granted via separate "side letters". Common reasons given for these are that some investors are considered as strategic, or a large client, or because the investor is subject to government regulation (e.g., ERISA, the Bank Holding Company Act, or public records laws). In addition, because side letter terms vary from fund to fund, and from investor to investor within a given fund, LPs may negotiate for a "Most Favored Nation" (MFN) provision that permits the election of certain benefits granted to other LPs via side letters. In general, MFN guarantees that the investor has the best terms granted to any other investor. It is unclear whether any of these side letters are favors granted to investors or whether only certain investors need to clear some internal regulations (e.g. in terms of Corporate Social Responsibility). Either way, however, an investor asking for side letters is exerting a higher level of effort.

Investors report that on average they obtain side letters for 55% of their funds. It is interesting to note that side letters are widespread, though far from ubiquitous. It means that a

[19] Gompers and Lerner (1996), Metrick and Yasuda (2010) study contracts between private equity funds and their investors. Sahlman (1990) describes some agency problems in venture capital organizations and how the contracts and operating procedures have evolved in response.

large number of investor do not play by the 'official' LPA, but obtain different terms. In addition, answers appear polarized, with about 25% of the investors receiving them for all their funds and about 25% of the investors receiving them for none. Polarization can best be demonstrated by looking at the frequency at which they receive both side letters and the MFN clause. 44% of the investors always receive side letters, 30% sometimes, and 26% never receive side letters. The proportions are very similar for MFN. It means that there are probably only two LPAs: the default one and a special one, both of which are granted to a large group of investors. There may also be some intermediary ones but given how widespread the use of MFN is, it is probably not significant. This result has important implications for empirical research on GP-LP relationships, which should take into account the fact that the LPAs observed by researchers are just a default template that applies only to a sub-set of investors. In addition, the fact that some investors systematically get MFN or side letters while some receive them only sometimes may indicate that side letters are not just a 'tick the box' type of procedure: they may be perceived, at least partially, as a favor or as special treatment.

We also ask, more broadly, whether they negotiate contract terms and 49% report that they always do (only 13% report never doing so). This may be in contrast to common belief as well. The LPA is not a take-it-or leave-it proposition by the GP, but is a document investors negotiate on.[20]

Table 4 – Panel B shows the results from a set of regression analysis similar to those given in the previous section. Once more, we find that LP size is significantly related to all of the variables capturing contracting effort. Larger LPs are more likely to benchmark contracts, to obtain side letters, a Most Favored Nation clause, and to negotiate the contract terms and conditions. At most one other investor characteristic is significant in each one of the specifications; LP size, in contrast, is highly statistically significant throughout.

[20] We ask LPs what they negotiate on through direct questions. Fees are mentioned half of the time, followed by the "key man" clause (33%), which allows LPs to sever their commitment should certain partners in the fund leave.

4.3 Monitoring effort

Unlike the monitoring of portfolio companies by the GP, the monitoring of the GP by the LP is an issue that has not been covered in the literature. It may be because LPs cannot intervene in fund decisions so that monitoring does not appear necessary at first sight. In fact, monitoring is useful in case the investor considers selling its stake in a fund, or purchasing more, in the secondary market. But the most important reason to monitor is to prepare for due diligence at the next fundraising and this reinvestment decision is one of the most important one for LPs.[21] LPs can monitor through a wide range of different actions, most of which are difficult to quantify. We ask three sets of questions to assess monitoring effort.

First, investors can closely monitor fund managers by accepting a seat on fund advisory boards, provided they are invited to do so by the fund managers.[22] These advisory boards include limited partners and are often designed to provide access to deals or technical expertise. Further, advisory boards are less formal (and have no legal obligations) than corporate boards of directors, while also providing guidance and oversight for the operation of the fund. Sometimes the board may be involved in portfolio company valuations. We ask investors for the number of board seats they have. Obviously, we need to scale this by the number of funds and we need to require investors to have a minimum number (which we set to 5). Table 5 – Panel A shows that the average number of board seats per fund is 0.34, i.e., investors sit on the board of one in three

[21] By constantly monitoring its GP, the LP learn more about the GP than any outsiders would. Importantly, an LP may take advantage of being an investor to ask for a meeting twice a year at the GP premises, during which it can get a sense of how motivated employees are, among other things. This is something a prospective investor would not be able to do. To illustrate, Fraser-Sampson (2007) argues that "Once made, the investment needs to be monitored. You want to know that the firm is sticking to its agreed investment model, that it is investing efficiently, and that the team dynamics are still as they were when you carried out the due diligence." In other words, by actively monitoring the GP, the investor has a unique opportunity to learn about team stability and better assess the integrity of a GP. Fraser-Sampson (2007) cites examples of GPs denying rumors that some of its professionals were leaving. Investors who asked these questions and subsequently witnessed professionals leaving learnt that the GP may lie to them, a conclusion that can be reached only by active monitoring.

[22] Considerable research has been devoted to studying the boards of public companies (see. Adams, Hermalin, and Weisbach (2010), for a survey). We are not aware of work on the advisory boards of PE funds.

funds they are invested in (on average). The inter quartile range is quite large. A quarter of the investors have seats in less than 6% of the funds they are invested in and more than a quarter of the investors have a board seat in half of the funds they are invested in. Furthermore, the board meetings are well attended, with an average at 79% and a narrow inter-quartile range. This indicates that the event is not a mere side-show but that investors find it useful.

Second, investors may monitor by keeping track of the cash flows to/from funds. This facilitates the next round of due diligence, might trigger some intervention on the secondary market, or exert some pressure for action on the fund managers. Investors report spending an average of 16 days (full time equivalent(per fund on this issue, with a wide range of answers. We also find that almost all the investors (85%) track the composition of their PE portfolio in terms of industry, deal size and country.[23]

Third, and finally, we use visits to portfolio companies as another proxy for monitoring intensity. This refers to visiting companies that are held by the fund in which the LP is invested, or in other words, visiting the companies that the LP owns in-fine. Not surprisingly it is not common practice and relatively few LPs say they always do it (8%). A much larger share (61%) say that they sometimes visit, but as many as 32% of the respondents say that they never do.

Table 5 – Panel B shows regression analysis similar to those done in the previous section. As with the previous regression results, we find that LP size is significantly related to all of the variables capturing monitoring effort. Larger LPs are more likely to hold a seat on advisory boards, and even more likely to actually attend the meetings. They spend more time tracking the fund cash flows, are more likely to co-invest with the PE fund, and to visit portfolio companies.

< Table 5 > < Figure 1>

[23] We insert the answers to the question on whether they co-invest with PE funds in this table, even though they do not constitute a form of monitoring. We find that 57% of the respondents have co-invested with funds. Appendix A discusses co-investments in more detail.

4.4 Staffing and Effort Level

The results presented above show that there is considerable heterogeneity across investors in terms of effort level. Remarkably, all of these differences are significantly related to LP size, rather than to any of the other main investor characteristics: LP experience, type, location, Parent AUM and Parent experience. Large LPs, however, differ in many other dimensions that we have not controlled for. In fact, results discussed in Section 2 show that large investors are very different in terms of organizational structure and human resources management. Investors that are more incentivized, specialized and better staffed – as is the case for larger investors – can be expected to produce a higher level of effort: we test this hypothesis in the following sub-section.

4.4.1 Investor Effort Index

Empirically, the main challenge is to maintain a sufficient number of observations as we add several control variables. To deal with this issue, we opt for building a simple index, consistent with the solution used by Gompers, Ishii, and Metrick (2003) and many other papers in a similar context.

In Tables 3, 4 and 5, we run a total of 17 regressions, using 17 different dependent variables, each capturing a type of effort made by the investor. The "Investor Effort Index" is computed using these 17 answers. For multiple choice variables, we give a score of one if the investor answers 'always' and zero otherwise; this is except for 'visit portfolio companies' for which we give a score of one if the answer is either 'always' or 'sometimes,' in order to have enough variation. For the continuous variables we give a score of one if the answer is above the median answer. Finally, for binary variables, we keep the one/zero score. We simply average this score across the 17 answers for each investor and we end up with 234 values of the Investor Effort Index, one for each of the investors who have at least one valid answer (out of the 17

total).[24] The average investor has 10 valid answers to determine its effort index level. The histogram is plotted in Figure 1 and the distribution seems uniform. We thus have a wide range of effort levels across investors.

4.4.2 Control variables

Large LPs differ on many dimensions. Table 2 lists a number of investor characteristics. These control variables are, however, endogenous and we shall thus interpret the following regression results as evidence on conditional correlations. The aim is to see whether even endogenous control variables can affect the significance of LP size. The potential endogeneity of LP size itself is discussed in the next section.

Relevant control variables include the following characteristics, listed in the order of appearance in Table 2: i) number of employees, ii) PE allocation (% of total funds), iii) number of funds per professional, iv) investment committee turnover, v) fraction of fund-of-funds, vi) average PE team experience, vii) Asset under management per professional, viii) whether the PE team also manages hedge funds, ix) whether the PE team also manages real estate, x) majority voting in the investment committee, xi) autonomous investment committee, xii) performance based salary, to which we add xiii) fraction of quantitative due diligence (Table 3) to measure reliance on soft information.

Most of these characteristics are actually drawn from Lerner, Schoar, and Wongsunwai (2007) who list potential explanations for why some investors may perform better in venture capital. They conjecture that better performing investors – endowments in their sample – find it easier to retain employees (i.e. experience lower turnover), may have less conflicting objectives, and may be more likely to have incentive-pay schemes, enjoy more freedom/autonomy, attract more experienced employees, or rely more on soft information.

[24] Although equally weighting each component does not reflect the relative impact of the different components, it has the advantage of being transparent, simple and agnostic about the relative efficacy of any of the index components.

In addition to these organizational characteristics, the allocation to PE may matter. Organizations with relatively little money in private equity may spend less effort on private equity investing because it is not an important part of their portfolio. Finally, additional effort may be exerted by better staffed and more specialized investors. We control for all these variables.

Table 6 shows results of regression analyses with the Investor Effort Index as a dependent variable. The first specification regresses the index on the ten main investor characteristics used in Tables 3, 4 and 5 and we find that LP size is strongly positively related to the effort index. Fund-of-funds also exhibit a significantly higher level of effort while pension funds exhibit a lower one.

Next, we add one by one the thirteen control variables listed above. We find that only five of them are significant (non-tabulated). They are all related to staffing. If we were to add the eight non-significant control variables, the number of observations would drop to 51 but the coefficient on LP size would still be significant at 1% level test. To avoid such a drop in the number of observations, we do not include these eight non-significant control variables.

Model 2 shows that both measures of investment scope ("team also manages hedge funds" and "team also manages real estate funds") are negatively related to the effort index but only the former is significant. This is consistent with the fact that real estate funds share more common characteristics with private equity funds (e.g. the contracts) than do hedge funds. This specification also shows that the number of investment professionals is related to the effort level. All else being equal, the more professionals in the PE team, the more effort is exhibited.

The next two specifications show that both the number of funds per investment professional and the assets under management per investment professional are strongly negatively related to the level of effort. This also seems natural: organizations that are more thinly staffed exert less effort overall. Of the two proxies, the asset under management per investment professional appears to be the most significant one economically and statistically. In

the last specification, we re-run the specification of Model 1 on the sub-sample for which we observe the number of investment professionals in order to guarantee that our results are not driven by changes in the sample composition. We find that results are unaffected. Throughout all specifications, LP size remains strongly statistically significant.

Three variables appear to be robustly related to the effort index. Higher effort levels are observed for larger LPs, LPs who are *not* in charge of hedge fund investments, and LPs that are better staffed LP (funds and asset under management per investment professional). We also find that more experienced LPs exhibit a lower effort level. Overall, we conclude that the inclusion of additional controls does not alter the effect of LP size on investor actions.

< Table 6 >

4.5. Reverse causality

A potential issue with the results on investors effort is that investors who make a lot of effort may be performing better and, as a result, receive large amounts to invest in private equity. We tackle this reverse causality hypothesis by re-running two regressions models of Table 6, where the size effect should be absent (or highly reduced) under the null of reverse causality.

We select Models 1 and 6 in Table 6; M1 has the largest number of observations and M6 includes all the significant variables while maintaining a high number of observations. We run these two specifications in four sub-samples. The results are presented in Table 7. First, we exclude fund-of-funds because their size depends most on their past returns. Instead of going down, the coefficient on LP size increases slightly (from 0.07 to 0.08).

Reverse causality is a concern only for those LPs that have been investing long enough for them to see high returns and for size to adjust accordingly. The usual life of a private equity fund is 10 years and we thus look at the results on the sub-sample of LPs that started to invest after 1998. These LPs are presumably too young for their own past performance to influence their 2008 size. This sub-sample is less than half of the original sample in Table 6. Despite this drop in

the number of observations, LP size is still statistically significant at the 1% level test. The economic magnitude is unaffected; the coefficient on LP size stays at 0.07.

A third, and arguably more direct test, is to exclude investors who declare that internal factors (e.g. their own past performance) are more important than external factors (e.g. overall industry performance) when deciding on their allocation. Anecdotal evidence in newspapers and teaching case studies indicate that when deciding on their allocation, investors use some variations of the mean-variance model, where the expected returns of each asset class are taken from industry benchmarks. For private equity, they often use the return pooled across all funds published by consultants such as Cambridge Associates or Thomson Reuters. Naturally, if the PE team has beaten its benchmark in the past it may receive a bit more than the model is stating, but it may not be the main driver. To shed more light on the relative influence of internal versus external factors on allocation, we question the investors directly.[25] The average percentage answered was exactly 50%, but with wide variation. One third of the respondents say the split external-internal factors is 33%-66% and one investor in five stating that the split external-internal is 66%-33%. When we exclude investors that say that internal factors represent 50% or more in their allocation decision, we observe that the coefficient on LP size increases. Reverse causality would have predicted the opposite effect.

Finally, we use LP size as of 2000 and exclude LPs that started before 1990. The number of observations decreases sharply and measuring LP size as of 2000 instead of 2008 probably introduces noise in our main variable. Yet results remain statistically significant at a 1% level test. We thus believe that our results are unlikely to be explained by reverse causality.

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[25] The question was formulated as follows: Please indicate the relative role played by external factors (vs. internal factors) in determining your organization's PE allocation, where: (a) External factors: perception of the PE asset class (e.g. publicized returns of PE and of other asset classes, diversification benefits); (b) Internal factors: your past performance in PE, your access to funds, your access to co-investment opportunities, the concessions you obtained on funds' terms and conditions, etc.

< Table 7 >

5. Investors heterogeneity in beliefs: Fund selection criteria

After documenting the wide heterogeneity in effort level across investors and showing that LP size is the key driver of this heterogeneity, we turn to documenting differences in investors' beliefs. There are many models featuring investors with different beliefs in financial economics. Empirically, such differences have been mainly captured by resulting variables like differences in analysts' forecasts. In our survey, we ask investors for their ranking of a number of investment criteria. We first look at whether responses vary across investors and we then look at whether the answer can be related to investor characteristics.

Investors are asked to rate a series of criteria that they use to select funds. This question is asked separately for three types of funds: first-time funds, seasoned funds of firms in which the investor is not already invested, and reinvestment decisions ("re-ups"), since each type of investment poses different challenges. Investors rate each criterion as largely irrelevant, somewhat important, very important, or crucial. They also pick a single one as the 'main criterion'.

5.1. Investing in first-time funds

A first-time fund is the first fund that is raised by a newly formed team of private equity fund managers. As summarized by Lerner, Hardymon, and Leamon (2007): "Nowhere is the inefficiency of the private equity fundraising process more apparent than in the raising of first-time funds.(…) How does one raise a fund without a track record, when to obtain a track record one needs a fund?" Investments in first-time funds are therefore somewhat of a puzzle, especially when observing that these funds also underperform on average (cf. Kaplan and Schoar (2005)). Why do investors give money to funds that both underperform and have higher information asymmetry?

We first study the widely-held belief that many investors do not invest in first-time funds. Results are shown in Appendix Table – Panel A: only 62% of the respondents have invested in a first-time fund and the remaining 38% say they have never done so. When respondents are asked for reasons, two-thirds of those who never invest in first-time funds mention the absence of a track record as one of the reasons. One-quarter do not invest because of excessive uncertainty regarding the ability of the team to work together. One in eight respondents reports that it is corporate policy not to invest in first-time funds. Thus, a large proportion of LPs do not invest in first-time funds for reasons other than their organization's policy.

More than half of the LPs that invest in first-time funds report that they do so because they expect the first-time funds they select to outperform. By far, the main criterion for investing into first-time funds is the partner's previous PE successes. Hence there is a belief that selecting first-time funds created by teams who did well in their previous PE-related occupation is a good strategy. In fact, Table 8 shows that 56% of the investors rank this criterion as the single most important one, and 59% rank it as crucial. This constitutes a fairly wide consensus. It also shows that in reality, there is no such a thing as a first time fund. First-time funds tend to be created by people with a convincing PE track record.

Table 8 lists reasons for investing in first-time funds in decreasing order of importance. The fund's proposed strategy receives the next higher score, followed by the partners' network quality and experience in working together. Somewhat surprisingly, fund size and especially 'access to follow-on funds' receive relatively low scores. The latter means that it is not necessary to invest in a first-time fund in order to secure the option to invest in follow-up funds.

'Commitments by top LPs' receives a surprisingly low score, as well. This contrasts with the common argument that securing a commitment from investors like Yale or Harvard endowments are important for fund prestige. In addition, as shown in the previous section, due diligence is very costly and 'top' LPs seem to produce a much higher amount of effort. We could thus expect small LPs to free-ride on the extensive due diligence of the larger/top LPs. Yet, we

find that commitment by top LPs receives a surprisingly low score albeit with some variations in the answers. 19% of the investors rate the commitment of top investors as 'very important'.[26]

Lerner, Hardymon, and Leamon (2007) argue that to raise a first-time fund, the GP needs either to set an alliance with a large institution or to target investors who do not care about returns (e.g. investors that want to build financial relations or stimulate the local economy). Results show that only a minority of investors pay attention to the possibility of generating business for other divisions. Also, Appendix Table shows that LPs have little interest in the presence of either strategic partners or special LP among the other investors in a first-time fund.

Overall, our results suggest that investors backing first-time funds do not do it for a lack of a better option, or because they do not focus on returns: they deliberately choose to invest in first-time funds because they believe that the past successes of the newly assembled team predict future success.[27] This is an important result that has yet to be given a theoretical rationalization in models of private equity investment.

< Table 8 >

5.2. First-time investment in a seasoned private equity firm

As mentioned above, there is a view that investors need to start with the first fund of a GP in order to be invited to invest in the subsequent funds. Yet, we observe many first-time investments in a seasoned private equity firm. In this section we study the investment criteria for these investments. In contrast to the criteria for first-time funds, there is no clear consensus for first-time investments in seasoned funds.

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[26] A caveat is that respondents may be reluctant to confess they are followers even in an anonymous survey.

[27] As many as 21% of investors say that "investing for reasons other than performance" is *not* an irrelevant criterion. For banks, that percentage shoots up to 57%. For both government-owned investors and public pension funds, that percentage is around 25%. For US public pension funds, it is 30%, which nicely complements the finding of Hochberg and Rauh (2013) showing that US public pension funds exhibit a severe and costly local bias.

Table 8 – Panel B shows that, perhaps surprisingly, LPs rate the stability of the team as the most important criterion for investing. This result is particularly interesting in light of the recent study by Cornelli, Simintzi, and Vig (2013) who find that team stability is slightly negatively related to returns. Although we did not ask whether team stability was rated as crucial because investors wanted to see instability, arguments in Cornelli, Simintzi, and Vig (2013) and our subsequent conversations with respondents indicate that they said it was crucial in a positive sense – they want to see team stability.[28]

Table 8 shows that the next highest scores – 'investment strategy', past multiple, past IRR and GP's reputation, respectively – receive similar scores. Each of the top five investment criteria is selected as the most important one by between 12% and 18% of the respondents. For first-time fund, the top criterion is chosen by 56% of the respondents, the second highest by 15% and the third highest by 9%. There is, therefore, considerably more disagreement among investors when it comes to investing into seasoned funds.

The high score of past performance echoes common arguments such as that of Peter Dolan of Harvard Management Company, quoted in Lerner, Hardymon, and Leamon (2005): "When you commit to a venture capital fund as a limited partner, you're tying up your money for ten years based on someone's past performance" (p76). Such evidence is also consistent with empirical studies in private equity showing that (aggregate) fundraising is strongly related to past private equity return (Kaplan and Strömberg (2009), Gompers and Lerner (1998)).

Yet, the importance of past performance is unclear. First, performance measures such as the IRR are often misleading in a private equity context while Multiple is a more robust measure of performance (Phalippou (2008)). 18% of the respondents select past IRR as the most important criteria while only 13% of the respondents select Multiple as the most important. Furthermore, Phalippou (2010) and more recently, Brown, Gredil, and Kaplan (2013) show that past

[28]This view is also routinely expressed in practitioners' articles and books. For example, Fraser-Sampson (2007) writes that: "Team dynamics are key and require careful teasing out."

performance, if computed at the time of fund-raising, is not predicting future performance. This situation clearly aligns with the findings in the literature on mutual funds (Sirri and Tufano (1998)) and hedge funds (Fung et al. (2008)).

The renewed commitment by existing LPs receives a somewhat mild score but the answer is split, with 44% saying it is 'somewhat important' and 49% saying that it is 'very important'. This is interesting in light of the model of Hochberg, Ljungqvist, and Vissing-jørgensen (2013). Similarly, the commitment by top LPs receive a relatively low score on average but it has a very large variation in the answers with 33% saying that it is largely irrelevant and 27% rating it as very important.

The answers receiving a low score are on the opinion of the gatekeeper, co-investment opportunities, generation of business for other divisions, access to follow-on funds, and commitment by top LPs. The quality of partners' education also receives a low score which somewhat contrasts with the fact that fund-raising prospectuses and PE firm websites feature prominently biographical information of their key staff. It seems that investors pay much less attention to the individuals than to the teams that they form.

5.3. The reinvestment decision

Investors who are not satisfied with a PE firm have limited options to express their dissatisfaction other than not reinvesting. They need to vote with their feet and we provide here the first estimate of its frequency. In Appendix Table – Panel B, we show that 86% of respondents have refused to reinvest at least once, and that investors in our sample refuse to reinvest in about 25% of the funds they had invested in, on average. PE firms place a lot of emphasis on having a stable group of investors and it is therefore interesting to see that about one in four PE firms gets dropped by an investor at each fund raising round. Moreover, we do see some variation across investors, for

example, one-third of them report that they drop less than one in six GPs while another third report that they drop more than one in three GPs.[29]

The decision to reinvest in a fund is quite different from that of investing for the first time, since the previous investment has given the LP an opportunity to reduce the asymmetric information about the quality and characteristics of the GP. Yet results shown in Table 8 – Panel C are similar to those obtained when we ask for the first investment in a seasoned GP. Again, stability of the team comes first, then the strategy, followed by past performance, and all four criteria receive similar ratings. The fact that the LP has acquired more inside information about the GP does not mean that it relies any less on external information, such as past performance. LPs that already invested in a fund should know more about team characteristics as an insider and therefore be better positioned to assess the subtleties of team dynamics. Yet, team stability still gets the highest score. Naturally, the renewed commitment by exiting LPs is much less important when reinvesting. Finally, we note that the quality of reporting and the accuracy of NAVs both receive a score in the middle range. This is interesting in light of the current debate on regulation of private equity to improve the quality of reporting by fund managers.

5.4. Regression Analysis of the criteria to invest

It is rare that more than 50% of the investors choose the same answer for any of the three types of investment decision. For each question the most frequent answer collects between 40% and 50% of the choices. We now study the drivers of this heterogeneity in investment criteria. We run two sets of regressions: i) OLS with the criterion's z-score as a dependent variable, ii) ordered Probit with the answer score as the dependent variable (0=irrelevant,…,4=crucial). The set of control variables is the same one as in the previous section. To preserve space, we only report the t-

[29] The main reason given for dropping a GP is by far 'disappointing past performance'. This is followed by a deviation from the proposed strategy, i.e. style drift, and then by key people leaving. An excessive increase in fund size is only 'sometimes' a reason not to reinvest. Fees are rarely a reason not to reinvest.

statistics of the control variables that are significant at least twice across the 50 regressions (one for each criterion). Still to preserve space, we show the results only when at least one control variable is statistically significant. Results are shown in Table 8 – Panel D (OLS) and Panel E (Ordered Probit).

By far, the most important explanatory variable for the ratings of investment criteria is LP size. Larger investors rate the proposed investment strategy and the type of exposure a given fund provides significantly more highly. They also rate team stability and partner's networks very highly. They pay less attention to education, access to follow-on funds and the generation of side business for other divisions.

Pension funds seem to pay more attention to fund size and valuation of unrealized investments, and less to renewed commitments and portfolio exposures. Fund-of-funds are also keen on team stability and less so on portfolio exposure, investment strategy and co-investment opportunities. Endowments are similar, and interestingly, value the quality of education more than others and pay much more attention to IRRs than other type of investors. North American investors pay more attention to team stability.

Overall, LP size is a major factor associated with investment criteria. It is difficult to argue that investment criteria, and the beliefs underlying them, can be explained by organizational structure. The importance of LP size for both actions and beliefs does therefore point to larger investors being different.

6. Conclusion

It has been argued that the best private equity partnerships do not increase fund size or fees to market-clearing levels. Instead they have rationed access to their funds to favor their most prestigious investors (e.g. Ivy League university endowments). Further, industry observers (e.g. Swensen (2000)) have often argued that endowments are better equipped to assess and evaluate emerging alternative investments, such as private equity, in which asymmetric information

problems are especially severe. Lerner, Schoar, and Wongsunwai (2007) document that improved access as well as experience of investing in the private equity sector led endowments to outperform other institutional investors substantially during the 1990s. However, private equity is no longer an emerging, unfamiliar asset class, and the distribution of private equity fund returns has also changed over time. In particular, venture capital returns fell dramatically after the technology bust of the early 2000s.

Nowadays, investors such as the Canadian CPPIB and the Dutch AlpinInvest have built private equity portfolios worth over $35 billion each in just a decade (both started in 2001). In contrast, both Yale and Harvard endowment, the pioneer investors in that asset class, have private equity portfolios worth around $5 billion. The emergence of very large investors goes hand in hand with the disintermediation of private equity. Large investors either co-invest alongside funds or even bypass funds altogether (Fang, Ivashina, Fang, and Lerner (2013)).

Using a large-scale survey, we show that institutional investors exhibit considerable heterogeneity in their structure, behavior, and beliefs, and that the amount of capital allocated to private equity is its foremost driver. Other characteristics that broadly capture prestige and long-term relationships (e.g., investor type, tenure, total asset under management, and location) play virtually no role. The rapid concentration in the asset management industry should therefore significantly change the characteristics of the 'marginal' investor.

Our findings also have implications for the organizational design of institutional investors. For example, let us evaluate the potential benefit from investing in private equity for the Norwegian or Chinese Sovereign Wealth funds, two of the largest investors in the world, yet private equity novices. On the one hand, one could think that it would be difficult for these investors to enter private equity because they have little experience and lack long standing relationship with funds. On the other hand, one could think that all you need is cash. If you have cash, you can assemble a large team of competent people that will be effective at negotiating,

screening and monitoring. From our evidence, the latter is more likely to hold true. That is, the case for private equity investing is stronger for large albeit new investors, all else being equal.

Let us consider a second example. Following the perceived success of large endowment in venture capital (e.g. Yale University), several small endowments have targeted aggressive allocation to private equity.[30] If what explains investor heterogeneity is investors' type (such as endowment versus pension fund) this move is warranted, but if the source of heterogeneity is size, as we find here, this move cannot be justified on the grounds of just being an endowment.

Our findings show the benefits for investors in pooling resources either directly or via fund-of-funds.[31] They may provide a rationale for the current trend in the consolidation of money management in the pension fund industry. For example, larger pension funds in the Netherlands (e.g., APG and PGGM) obtain mandates from smaller pension funds to invest in certain asset classes, predominantly alternative assets. In Canada, large Canadian pension plans such as Ontario Teachers' Pension Plan and OMERS are discussing similar moves. Oxford University created a university endowment that is the collection of a number of smaller Oxford colleges' endowments. This university-wide endowment is targeting a much larger private equity allocation than the colleges were before the merge.

In contrast, Swedish pension funds were split in five independent funds (AP1, AP2, AP3, AP4 and AP6) because the government did not want most of the country's equity to be concentrated in one hand. If these pension funds invest in private equity independently, they each carry their due diligence, negotiate terms and conditions, monitor independently. There are talks in Sweden about merging them back together and evidence in this paper shows the potential benefits of doing so in an asset class such as private equity.

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[30] "The success of Harvard and Yale attracted imitators. After suffering endowment losses in 2001 and 2002, smaller schools looked to their Ivy League idols for guidance on bullet-proofing their portfolios. "Alumni called me up and said, 'We're going to be just like Yale, right?'" recalls the CIO of one midsize endowment fund. As a result, many small schools crowded into hedge funds and private equity (…)" *Institutional Investor, November 4th, 2009.*

[31] This also implies an additional layer of fees and potential conflicts of interest, which we do not quantify here.

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Appendix A: Co-investment opportunities

Our survey *(Part 3)* also inquires about co-investment opportunities. We ask whether investors are offered such opportunities, how much they invested in them, and what are the reasons for rejecting or accepting them.

A growing phenomenon in private equity is that of co-investing (Phalippou (2009)). Co-investing means that a GP may invite an LP to co-invest with the fund in a specific company, without charging additional fees (or charging much less). Engaging in co-investments is thus de-facto a reduction in the overall fee bill for the investor.[32] In addition, the GP may overweight the selected LPs in the best investments and therefore squeeze out the non-participating LPs. If so, the gross-of-fees performance would also be higher for participating LPs.

However, in practice, the participating LP engages in extra due diligence to screen the co-investment opportunities, which is costly. In addition, co-investments increase career concerns. For example, an employee of a pension fund may decide to invest in a handful of co-investments and a handful of funds. The probability of five co-investments going wrong is much higher than that of five funds going wrong. Hence, the drawbacks of co-investing are all 'agency type of stories'. After all, a co-investment is just an increase in an existing investment in a given company at no extra cost. Bared agency stories or career concerns there would not be a need for extra due diligence.

Co-investments have become an important aspect of private equity investing. Anecdotally, for example, a large investor recently told us that the reason why they invested in the buyout funds raised at the pick of the buyout boom (2005-2007) was because if they would not have participated, the large private equity firms would not have invited them to co-invest anymore. It thus looks like co-investment is a sizeable carrot used by PE firms to reward or retaliate some of their investors.

Recently, Ivashina, Fang, and Lerner (2013) collected for the first time data from seven large LPs and study the returns they obtained on their co-investment program. We do not have returns here but we have a large cross section of investors and can document some macro features

[32] The literature has studied compensation contracts between LPs and GPs (Gompers and Lerner (1996), Metrick and Yasuda (2010), Phalippou (2009), Phalippou and Gottschalg (2009)). A number of puzzles have emerged from this literature. First, fees are surprisingly large especially when performance is relatively low. Second, most of the fees seem fixed and not performance related (see Sensoy, Wang, and Weisbach (2013) for a caveat to this finding). Third, the headline fees (management fees, carried interest and hurdle rate) seem remarkably stable across time and fund-raising cycles.

of the co-investment practices in private equity thereby complementing Ivashina, Fang, and Lerner (2013) results.

Our survey gives the first evidence on how widespread co-investing is. In Panel C of the Appendix Table, we show that as much as 80% of the investors have been invited at least once to co-invest. This is a remarkably high number given the diversity of our participants. It means that even small and new investors get invited. However, we find that the average invitee rejects on average a staggering 81% of the invitations. This number may appear surprising as well. Reassuringly, however, Ivashina, Fang, and Lerner (2013) report a similar finding: "According to our interviews, some of the institutions pick less than 5% of deals available to them."

One third of the investors who got invited have rejected all of the invitations. When we ask these investors who rejected all invitations why they did so, in an open question, they mention primarily that it is an internal policy (mentioned in 46% of the answers) and lack of adequate skills (25%). In contrast, when we ask investors who accepted some invitations why they rejected some co-investment opportunities. In the same open question, they mention primarily adverse selection concerns (mentioned in 46% of the answers), risk concerns (31%). Internal policy is still mentioned in 19%, indicating that some investors have some specific mandates in that investment set.

The overall amount of co-investment in the private equity portfolio averages 10% among those investors who do co-invest. We then asked for the motivations to co-invest. Improve performance before fees came first. This means that investors believe the GP will cherry pick deals to favor them. Fee reduction and the opportunity to customize their portfolio also receive a lot of hit. When we ask for the main reason, the improvement in performance before fees comes first, being selected by almost half of the respondents. Fee reduction and portfolio customization comes next with about 20% of the answers.

We do not include the motivations for co-investing and rejecting co-investment opportunities because the number of answers is below the 100 threshold we imposed throughout the paper.

Table 1 – Main investor characteristics and sample representativeness

PEI Universe is the list of investors according to the Private Equity International (PEI) directory of year 2008. The number of observations in each category includes only those that enter our regression analysis. It is thus restricted to those which provide: the amount they invest in PE, their organization type, and which answer to at least one of the 17 questions for which we later run regressions, as explained in section 3.4.1. Note: amounts (and number of funds) invested in buyouts and venture funds are added up to create LP size.

Panel A: LP type

Investor type	Definition	Obs.	Fraction in our sample	Fraction in PEI Universe
Pension funds	Public and corporate pension funds	63	23%	19%
Fund-of-funds		51	18%	11%
Endowments	Includes foundations	37	14%	18%
Financials	Banks, insurance companies, asset managers	62	23%	27%
Other investor types	Family, government entities, corporation.	59	22%	25%

Panel B: Region of LP location

Region	Definition	Obs.	Fraction in our sample	Fraction in PEI Universe
North America	USA and Canada	89	33%	52%
Continental Europe	Europe excluding UK and Scandinavia	71	26%	16%
Scandinavia	Denmark, Norway, Sweden, Finland	36	13%	5%
UK		27	10%	8%
Australia		16	6%	4%
Japan		13	5%	4%
Rest of the World		20	7%	11%

Panel C: LP size

Amount invested in PE (2008; USD mln)	Obs.	Fraction in our sample	Fraction in PEI Universe
$0 \leq . < 100$	61	22%	30%
$100 \leq . < 250$	43	16%	16%
$250 \leq . < 600$	55	20%	15%
$600 \leq . < 2000$	59	22%	20%
$. \geq 2000$	54	20%	19%

Panel D: LP experience

2008 minus the year firm started to invest in PE	Obs.	Fraction in our sample	Fraction in PEI Universe
$0 \leq . < 4$ years	46	17%	16%
$4 \leq . < 7$ years	51	19%	15%
$7 \leq . < 10$ years	63	22%	18%
$10 \leq . < 15$ years	56	21%	20%
$. \geq 15$ years	56	21%	31%

Table 2: Organization Structure and Human Resources Management

Panels A and B provide descriptive statistics for the variables defined in section 2.3.1; Q1 and Q3 stands for 25th and 75th percentile. Answers for which the regressions have more than 100 observations are selected to be modeled in a multiple regression setting; we also require that dummy variables have a frequency between 0.25 and 0.75. The dependent variable for each regression is defined in the line below each model; independent variables are defined in section 3.2. The regressions results are shown in Panels C (Tobit regressions for continuous dependent variables) and D (Probit regressions for binary dependent variables). Significance levels in regressions are indicated by a (1%), b (5%), and c (10%).

Panel A: Descriptive statistics: continuous variables

	Mean	Q1	Q3	Obs.	Model
Parent Asset Under Management – AUM ($ billion)	28.41	0.59	14.11	246	
Parent experience (years)	39.58	9.00	43.00	272	
Number of PE professionals (staff)	7.62	1.50	7.00	211	
Number of IC members	6.76	4.00	8.00	191	
PE allocation (%)	0.34	0.04	0.75	246	
Number of funds held	46.09	10.00	60.00	166	
Funds per PE professional	15.15	3.33	18.00	156	M1
Dollars per PE professional ($ million)	249.62	50.70	333.33	211	M2
Average IC members experience (years)	11.26	7.30	14.43	149	M3
IC turnover	0.26	0.00	0.40	124	M4
Fraction of fund-of-funds in portfolio	0.37	0.00	0.38	166	M5

Panel B: Descriptive statistics binary variables

Answers: yes (=1), no (=0)	Frequency	Obs.	Model
PE team also manages hedge funds	0.26	269	M7
PE team also manages real estate	0.37	269	M8
Do you have an Investment Committee (IC)?	0.81	246	
Are the IC decisions completely autonomous?	0.78	143	
Are IC decisions taken by majority voting?	0.24	234	
Is part of the IC compensation related to financial performance?	0.45	201	M9
. *If yes,* Is the bonus larger than the fixed salary?	0.39	83	
Do other investment professionals receive a bonus?	0.48	198	M10
. *If yes*, Is the bonus larger than the fixed salary?	0.27	83	
. Has the compensation policy changed over the past 10 years?	0.31	199	M11

Panel C: Tobit regressions

	M1 Funds per PE professional	M2 Dollars per PE professional	M3 IC members experience	M4 IC Turnover	M5 % fund-of funds
LP size	-0.20[b]	-0.32[b]	0.05[c]	0.00	-0.14[b]
	(-2.33)	*(-2.38)*	*(1.84)*	*(0.02)*	*(-2.25)*
Pension funds	1.83[a]	2.94[a]	-0.18	0.12	0.86[a]
	(5.24)	*(4.94)*	*(-1.44)*	*(0.78)*	*(3.17)*
Fund-of-funds	0.48	0.17	0.42[a]	0.09	0.32
	(1.24)	*(0.26)*	*(3.06)*	*(0.57)*	*(1.02)*
Endowments	0.93[b]	1.69[b]	-0.14	0.18	0.76[b]
	(2.15)	*(2.21)*	*(-0.81)*	*(0.95)*	*(2.20)*
Financials	0.19	0.24	0.01	0.18	0.30
	(0.55)	*(0.41)*	*(0.04)*	*(1.24)*	*(1.12)*
North America	0.27	0.51	0.33[a]	-0.21	-0.14
	(0.94)	*(1.01)*	*(3.40)*	*(-1.56)*	*(-0.57)*
Continental Europe	0.17	0.19	0.07	-0.19	0.32
	(0.58)	*(0.38)*	*(0.60)*	*(-1.56)*	*(1.39)*
LP experience	0.46[b]	-0.57	0.04	0.08	-0.04
	(2.01)	*(-1.55)*	*(0.48)*	*(0.50)*	*(-0.23)*
Parent AUM	0.36[b]	0.91[a]	0.00	0.04	0.10
	(2.55)	*(3.92)*	*(-0.06)*	*(0.62)*	*(0.88)*
Parent experience	-0.08	-0.02	0.01	0.00	-0.01
	(-1.34)	*(-0.93)*	*(1.36)*	*(-0.11)*	*(-0.27)*
(OLS) R-square	31.8	28.2	29.1	5.5	12.7
Number of observations	150	211	149	124	166

Panel D: Probit regressions

	M6 Team also manages HF	M7 Team also manages RE	M8 IC members bonus	M9 non-IC bonus	M10 Compensation has changed
LP size	-0.21[a]	-0.13[b]	0.21[a]	0.24[a]	0.25[a]
	(-3.46)	*(-2.36)*	*(3.24)*	*(3.74)*	*(3.56)*
Pension funds	0.63[b]	0.81[a]	-0.11	-0.17	0.00
	(2.34)	*(3.26)*	*(-0.39)*	*(-0.62)*	*(-0.01)*
Fund-of-funds	-0.89[c]	-0.20	0.68[b]	0.18	0.10
	(-1.76)	*(-0.65)*	*(2.04)*	*(0.53)*	*(0.31)*
Endowments	0.85[a]	1.49[a]	-0.98[b]	-0.83[b]	-0.06
	(2.68)	*(4.51)*	*(-2.33)*	*(-2.08)*	*(-0.14)*
Financials	0.26	-0.01	0.20	-0.09	-0.17
	(0.94)	*(-0.02)*	*(0.72)*	*(-0.31)*	*(-0.57)*
North America	0.00	-0.20	0.02	0.01	-0.51[b]
	(-0.00)	*(-0.89)*	*(0.08)*	*(0.03)*	*(-1.96)*
Continental Europe	-0.25	-0.15	-0.46[c]	-0.09	-0.27
	(-0.97)	*(-0.70)*	*(-1.87)*	*(-0.36)*	*(-1.08)*
LP experience	-0.05	0.01	0.12	0.11	0.29
	(-0.28)	*(0.03)*	*(0.63)*	*(0.54)*	*(1.32)*
Parent AUM	0.10	0.03	-0.19	-0.28[b]	-0.22
	(1.02)	*(0.34)*	*(-1.54)*	*(-2.29)*	*(-1.59)*
Parent experience	0.02[c]	0.00	-0.01	-0.01	0.00
	(1.79)	*(0.30)*	*(-0.32)*	*(-0.65)*	*(0.27)*
R-square	22.5	23.8	23.4	23.0	16.6
Number of observations	269	269	201	198	199

Table 3: Screening effort

Panel A provides descriptive statistics for the variables defined in section 3.1; Q1 and Q3 stands for 25th and 75th percentile. Answers for which the regressions have more than 100 observations are selected to be modeled in a multiple regression setting; we also require that dummy variables have a frequency between 0.25 and 0.75. Regressions results are shown in Panel B. The dependent variable for each regression is defined in the line below each model; independent variables are defined in section 3.2. The regression method varies as a function of the type of the dependent variable: Probit for dummy variables, ordered Probit for multiple choice variables, and Tobit for the continuous variables. Significance levels in regressions are indicated by a (1%), b (5%), and c (10%).

Panel A: Descriptive statistics

Continuous variables	Mean	Q1	Q3	Obs.	Model
Time spent on due diligence, first-time fund (days)	26	10	30	102	M1
Time spent on due diligence, new seasoned fund (days)	20	8	28	102	M2
Time spent on due diligence, re-investments (days)	16	5	22	102	M3
Fraction of quantitative due diligence (vs. qualitative)	0.37	0.25	0.50	102	
Fraction of the funds going through due diligence	0.26	0.15	0.35	120	
Fraction of the funds you commit capital to	0.10	0.05	0.10	119	
Binary variables: yes (=1), no (=0)	Mean			Nobs	Model
Use your own fair value of unrealized investments?	0.30			160	M4
Multiple choice variables	Always	Sometimes	Never	Obs.	Model
Calculate your own GP past performance measure?	57%	34%	9%	208	M5
Benchmark GP track record?	77%	15%	8%	98	
Interview portfolio company executives?	43%	48%	9%	214	M6

Panel B: Regression analysis

	M1 Time spent First fund	M2 Time spent new seasoned	M3 Time spent Re-up	M4 Own NAV calculation	M5 Own return calculation	M6 Interview Executives
LP size	5.35[a]	3.52[a]	3.55[a]	0.22[b]	0.17[a]	0.11[b]
	(3.40)	*(2.80)*	*(3.25)*	*(2.28)*	*(3.05)*	*(2.15)*
Pension funds	-1.25	-2.11	-2.20	-0.76[b]	-0.62[b]	-0.31
	(-0.20)	*(-0.37)*	*(-0.44)*	*(-2.05)*	*(-2.47)*	*(-1.26)*
Fund-of-funds	0.12	8.71	5.97	0.38	0.61[c]	0.72[b]
	(0.02)	*(1.62)*	*(1.29)*	*(1.07)*	*(1.91)*	*(2.48)*
Endowments	-14.39[c]	1.85	-0.61	-0.12	-0.15	-0.55[c]
	(-1.88)	*(0.24)*	*(-0.09)*	*(-0.29)*	*(-0.46)*	*(-1.79)*
Financials	-2.20	7.67	3.57	-0.70[b]	-0.28	-0.23
	(-0.33)	*(1.56)*	*(0.84)*	*(-1.99)*	*(-1.13)*	*(-0.95)*
North America	10.82[b]	-4.68	-0.06	0.26	-0.04	-0.01
	(2.10)	*(-1.07)*	*(-0.02)*	*(0.89)*	*(-0.18)*	*(-0.07)*
Continental Europe	3.25	-4.96	-1.86	-0.30	-0.19	-0.35[c]
	(0.57)	*(-1.07)*	*(-0.47)*	*(-1.01)*	*(-0.85)*	*(-1.69)*
LP experience	-10.92[b]	-1.86	-0.45	-0.22	0.01	-0.31[b]
	(-2.50)	*(-0.50)*	*(-0.14)*	*(-0.96)*	*(0.06)*	*(-1.99)*
Parent AUM	1.91	-0.90	-0.55	0.02	0.06	0.07
	(0.77)	*(-0.40)*	*(-0.29)*	*(0.12)*	*(0.65)*	*(0.77)*
Parent experience	-0.11	0.18	0.40	-0.01	0.00	0.00
	(-0.28)	*(0.55)*	*(1.36)*	*(-0.06)*	*(0.30)*	*(0.43)*
R-square	20.8	18.9	20.5	18.0	14.6	14.2
Number of observations	102	102	102	160	208	214

Table 4: Contracting effort

Panel A provides descriptive statistics for the variables defined in section 3.2; Q1 and Q3 stands for 25th and 75th percentile. Answers for which the regressions have more than 100 observations are selected to be modeled in a multiple regression setting; we also require that dummy variables have a frequency between 0.25 and 0.75. Regressions results are shown in Panel B. The dependent variable for each regression is defined in the line below each model; independent variables are defined in section 3.2. The regression method varies as a function of the type of the dependent variable: Probit for dummy variables, ordered Probit for multiple choice variables, and Tobit for the continuous variables. The regressions results are shown in Panel B. Significance levels in regressions are indicated by a (1%), b (5%), and c (10%).

Panel A: Descriptive statistics

Binary variables: yes (=1), no (=0)	Mean			Nobs	Model
Benchmark contracts?	0.62			194	M1
Continuous variables	Mean	Q1	Q3	Nobs	Model
Time spent on benchmarking contracts (days)	11	3	12	95	
Fraction of the funds with side letters	0.55	0.00	1.00	193	M2
Fraction of the funds with Most Preferred Nation clause	0.49	0.00	0.99	195	M3
Multiple choice variables	Always	Sometimes	Never	Nobs	Model
Obtain side letters?	44%	30%	26%	197	M4
Obtain 'Most Favored Nation' (MFN) clause?	38%	29%	33%	192	M5
Negotiate contract terms?	49%	37%	13%	194	M6

Panel B: Regression analysis

	M1 Benchmark contracts	M2 % side letters	M3 % MFN	M4 Obtain side letters	M5 Obtain MFN	M6 Negotiate terms
LP size	0.19[a]	0.16[a]	0.17[a]	0.41[a]	0.36[a]	0.40[a]
	(2.96)	*(6.83)*	*(6.41)*	*(6.72)*	*(6.09)*	*(6.21)*
Pension funds	-0.49	0.09	0.05	0.37	0.23	-0.35
	(-1.64)	*(0.89)*	*(0.44)*	*(1.37)*	*(0.88)*	*(-1.30)*
Fund-of-funds	-0.05	0.11	0.14	0.02	-0.04	-0.26
	(-0.15)	*(0.97)*	*(1.07)*	*(0.07)*	*(-0.15)*	*(-0.84)*
Endowments	-0.16	-0.09	-0.12	-0.29	-0.37	-0.27
	(-0.46)	*(-0.70)*	*(-0.78)*	*(-0.87)*	*(-1.08)*	*(-0.82)*
Financials	-0.30	-0.06	-0.14	-0.34	-0.43[c]	-0.35
	(-1.04)	*(-0.58)*	*(-1.21)*	*(-1.37)*	*(-1.73)*	*(-1.36)*
North America	-0.47[c]	0.06	0.08	0.08	0.21	-0.50[b]
	(-1.87)	*(0.69)*	*(0.80)*	*(0.36)*	*(0.88)*	*(-2.15)*
Continental Europe	-0.34	-0.09	-0.13	-0.24	-0.31	-0.82[a]
	(-1.30)	*(-0.98)*	*(-1.28)*	*(-1.07)*	*(-1.39)*	*(-3.49)*
LP experience	-0.22	-0.09	-0.11	-0.30[c]	-0.22	-0.22
	(-1.17)	*(-1.43)*	*(-1.55)*	*(-1.76)*	*(-1.32)*	*(-1.30)*
Parent AUM	-0.27[b]	-0.01	0.00	-0.05	-0.05	-0.07
	(-2.31)	*(-0.34)*	*(-0.03)*	*(-0.48)*	*(-0.46)*	*(-0.64)*
Parent experience	0.00	0.00	0.00	0.01	-0.01	0.00
	(0.33)	*(0.34)*	*(-0.40)*	*(0.61)*	*(-0.71)*	*(0.05)*
R-square	14.9	30.2	27.0	32.1	28.2	25.0
Number of observations	194	193	195	197	192	194

Table 5: Monitoring effort

Panel A provides descriptive statistics for the variables defined in section 3.3; Q1 and Q3 stands for 25th and 75th percentile. Answers for which the regressions have more than 100 observations are selected to be modeled in a multiple regression setting; we also require that dummy variables have a frequency between 0.25 and 0.75. Regressions results are shown in Panel B. The dependent variable for each regression is defined in the line below each model; independent variables are defined in section 3.2. The regression method varies as a function of the type of the dependent variable: Probit for dummy variables, ordered Probit for multiple choice variables, and Tobit for the continuous variables. The regressions results are shown in Panel B. Significance levels in regressions are indicated by a (1%), b (5%), and c (10%).

Panel A: Descriptive statistics

Continuous variables	Mean	Q1	Q3	Obs.	Model
Fraction of advisory board seats held	0.34	0.06	0.52	120	M1
Fraction of advisory board meetings attended	0.79	0.66	0.95	106	M2
Time spent tracking fund cash flows (days)	16	2	15	139	M3
Binary variables: yes (=1), no (=0)	Mean			Obs.	Model
Track PE portfolio mix (industry/size/country)?	0.85			201	
Have you ever co-invested?	0.57			213	M4
Multiple choice variables	Always	Sometimes	Never	Nobs	Model
Visit portfolio companies?	8%	61%	32%	190	M5

Panel B: Regression analysis

	M1 % advisory board seat	M2 % meeting attended	M3 Time tracking CF	M4 Have co-invested	M5 Visit Companies
LP size	0.10[a]	0.04[b]	9.09[a]	0.21[a]	0.18[a]
	(3.39)	*(2.38)*	*(4.24)*	*(3.42)*	*(2.98)*
Pension funds	-0.14	-0.07	-3.66	-0.59[b]	-0.56[b]
	(-1.26)	*(-0.90)*	*(-0.39)*	*(-2.12)*	*(-2.07)*
Fund-of-funds	-0.02	0.11	-15.24	0.15	0.05
	(-0.13)	*(1.57)*	*(-1.44)*	*(0.45)*	*(0.18)*
Endowments	-0.13	-0.09	-10.24	-0.45	-0.36
	(-0.91)	*(-0.84)*	*(-0.91)*	*(-1.32)*	*(-1.08)*
Financials	0.01	0.04	-11.55	-0.12	-0.36
	(0.15)	*(0.61)*	*(-1.28)*	*(-0.43)*	*(-1.37)*
North America	0.04	0.04	-1.40	0.21	-0.13
	(0.46)	*(0.59)*	*(-0.18)*	*(0.88)*	*(-0.59)*
Continental Europe	-0.05	-0.13[b]	-17.2[7]b	-0.02	-0.30
	(-0.50)	*(-2.48)*	*(-2.11)*	*(-0.06)*	*(-1.36)*
LP experience	-0.09	-0.03	-7.43	0.29[c]	-0.08
	(-1.21)	*(-0.74)*	*(-1.30)*	*(1.67)*	*(-0.50)*
Parent AUM	-0.03	-0.01	0.66	-0.10	-0.02
	(-0.56)	*(-0.20)*	*(0.18)*	*(-0.97)*	*(-0.16)*
Parent experience	0.00	0.00	-0.38	0.00	0.01
	(-0.09)	*(-0.55)*	*(-0.64)*	*(0.03)*	*(0.47)*
R-square	12.4	18.3	15.8	17.4	11.2
Number of observations	120	106	139	213	190

Table 6: Staffing and Effort Level

The Table reports Tobit regressions models where the dependent variable is an index is formed with the 17 selected variables across Tables 3, 4 and 5. The index is described in section 4.4.1, and takes values between zero and one. Independent variables defined in sections 3.2 and 4.4.2.

	M1	M2	M3	M4	M5	M6	M7
LP size	0.07[a]	0.06[a]	0.09[a]	0.08[a]	0.09[a]	0.07[a]	0.09[a]
	(5.23)	*(4.65)*	*(10.61)*	*(8.02)*	*(6.13)*	*(5.81)*	*(9.86)*
Pension funds	-0.10	-0.06	-0.09	-0.05	-0.08	-0.04	-0.11[c]
	(-1.29)	*(-0.91)*	*(-1.42)*	*(-0.68)*	*(-1.40)*	*(-0.60)*	*(-1.81)*
Fund-of-funds	0.14[a]	0.06	0.06	0.07	0.06	0.07	0.07
	(2.74)	*(1.25)*	*(1.34)*	*(1.55)*	*(1.24)*	*(1.36)*	*(1.39)*
Endowments	-0.09[c]	0.03	-0.01	0.02	-0.01	0.03	-0.02
	(-1.72)	*(0.48)*	*(-0.18)*	*(0.38)*	*(-0.16)*	*(0.47)*	*(-0.66)*
Financials	-0.05	-0.11[a]	-0.10[a]	-0.11[a]	-0.10[a]	-0.11[a]	-0.12[a]
	(-1.05)	*(-3.51)*	*(-3.05)*	*(-3.27)*	*(-3.03)*	*(-3.35)*	*(-3.43)*
North America	-0.01	0.01	0.00	0.01	0.00	0.01	0.01
	(-0.54)	*(0.53)*	*(-0.03)*	*(0.48)*	*(-0.03)*	*(0.59)*	*(0.39)*
Continental Europe	-0.09[b]	-0.04	-0.13[b]	-0.05	-0.13[b]	-0.05	-0.04
	(-1.97)	*(-1.13)*	*(-2.36)*	*(-1.18)*	*(-2.45)*	*(-1.14)*	*(-1.04)*
LP experience	-0.04	-0.09[a]	-0.09[a]	-0.09[a]	-0.09[a]	-0.09[a]	-0.09[a]
	(-1.49)	*(-5.66)*	*(-5.42)*	*(-5.51)*	*(-5.33)*	*(-5.46)*	*(-5.41)*
Parent AUM	0.00	0.01	0.03	0.01	0.03	0.01	0.00
	(-0.13)	*(0.24)*	*(1.49)*	*(0.52)*	*(1.37)*	*(0.52)*	*(-0.18)*
Parent experience	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.77)	*(1.24)*	*(-0.03)*	*(1.29)*	*(-0.01)*	*(1.14)*	*(1.36)*
Team does hedge funds		-0.10[a]	-0.10[a]	-0.10[a]	-0.10[a]	-0.10[a]	
		(-3.73)	*(-2.66)*	*(-3.98)*	*(-2.75)*	*(-3.98)*	
Team does real estate		0.00	-0.01	0.00	-0.01	0.01	
		(0.11)	*(-0.17)*	*(0.14)*	*(-0.14)*	*(0.22)*	
Number of PE professionals		0.07[a]			0.01	0.04	
		(4.89)			*(0.35)*	*(1.51)*	
Funds per PE professional			-0.03[a]		-0.03[b]		
			(-4.79)		*(-2.25)*		
Dollar per PE professional				-0.02[a]		-0.01[b]	
				(-4.16)		*(-2.28)*	
R-square	33.6	48.1	53.9	48.7	53.9	49.1	43.6
Number of observations	234	188	149	188	149	188	188

Table 7: Reverse Causality Test − Staffing and Effort Level

The Table reports Tobit regressions models where the dependent variable is an index is formed with the 17 selected variables across Tables 3, 4 and 5. The index is described in section 3.4, and takes values between zero and one. Independent variables defined in section 3.2. The table shows results for the Models 1 and 8 in Table 6 for several sub-samples.

Exclude from sample:	Without Funds-of-funds		LPs that started before 1998		LPs whose allocation depends most on their own past performance		LPs that started before 1988 & LP size in 2000	
	M1	M6	M1	M6	M1	M6	M1	M6
LP size	0.08[a]	0.08[a]	0.07[a]	0.07[a]	0.08[a]	0.11[a]	0.05[a]	0.03[a]
	(5.06)	*(5.28)*	*(3.02)*	*(4.66)*	*(5.10)*	*(7.32)*	*(4.45)*	*(4.96)*
Pension funds	-0.10	-0.04	-0.16	-0.05	-0.15[b]	-0.10	-0.14[a]	-0.01
	(-1.38)	*(-0.56)*	*(-1.64)*	*(-0.53)*	*(-1.98)*	*(-1.39)*	*(-2.79)*	*(-0.13)*
Fund-of-funds			0.10	0.00	0.08	0.03	0.17[a]	0.07
			(1.18)	*(-0.04)*	*(0.93)*	*(0.37)*	*(3.88)*	*(1.39)*
Endowments	-0.10[c]	0.02	-0.15[b]	-0.03	-0.17[a]	0.00	-0.19[a]	-0.02
	(-1.70)	*(0.41)*	*(-2.08)*	*(-0.33)*	*(-3.27)*	*(0.01)*	*(-3.98)*	*(-0.54)*
Financials	-0.05	-0.11[a]	-0.08	-0.17[c]	-0.14[a]	-0.19[a]	-0.05	-0.08[b]
	(-1.07)	*(-3.40)*	*(-1.06)*	*(-1.84)*	*(-3.19)*	*(-3.87)*	*(-1.39)*	*(-2.20)*
North America	0.01	0.03	-0.11[b]	-0.02	0.02	0.08[c]	-0.01	0.02
	(0.26)	*(1.16)*	*(-2.06)*	*(-0.67)*	*(0.58)*	*(1.89)*	*(-0.32)*	*(0.86)*
Continental Europe	-0.08	-0.04	-0.13[c]	-0.04	-0.05	0.01	-0.14[a]	-0.11[b]
	(-1.36)	*(-0.65)*	*(-1.67)*	*(-0.71)*	*(-1.02)*	*(0.18)*	*(-2.92)*	*(-2.32)*
LP experience	-0.04	-0.09[a]	-0.06	-0.12[a]	-0.04	-0.08[a]	-0.12[a]	-0.13[a]
	(-1.23)	*(-4.34)*	*(-0.85)*	*(-3.17)*	*(-1.27)*	*(-2.65)*	*(-3.27)*	*(-3.89)*
Parent AUM	0.00	0.02	0.00	0.02	0.00	0.00	-0.01	0.01
	(0.07)	*(0.60)*	*(-0.18)*	*(0.57)*	*(-0.18)*	*(0.02)*	*(-0.27)*	*(0.22)*
Parent experience	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
	(0.87)	*(0.51)*	*(0.45)*	*(0.43)*	*(0.31)*	*(0.84)*	*(0.91)*	*(0.70)*
Team does hedge funds		-0.09[a]		-0.16[b]		-0.08		-0.14[a]
		(-3.27)		*(-2.43)*		*(-1.54)*		*(-4.29)*
Team does real estate		-0.01		0.01		0.04		0.02
		(-0.40)		*(0.11)*		*(0.68)*		*(0.58)*
Number of PE profess.		0.03		0.05[c]		-0.03		0.12[a]
		(1.02)		*(1.86)*		*(-0.93)*		*(4.16)*
Dollar per PE profess.		-0.01[b]		-0.01[b]		-0.02[a]		0.00
		(-2.35)		*(-2.36)*		*(-3.14)*		*(-0.22)*
R-square	25.09	43.61	31.58	52.11	42.33	58.73	40.3	52.7
Number of observations	189	150	103	81	143	116	134	114

Table 8: Fund selection criteria

The Table reports descriptive statistics and regression results for fund selection criteria described in section 4. Panels A, B, and C provide descriptive statistics for selection criteria used for assessing first time and seasoned funds, and for reinvestments. Panel D reports results of OLS regressions using z-scored variables, and Panel E reports results of ordered probit regressions, described in section 4.4. A z-score is computed by assigning a 1 to largely irrelevant, 2 to somewhat important, 3 to very important, and 4 to crucial for each investor. The mean and standard deviation of these investors' z-scores is computed for each answer and displayed in the last two columns of Panels A, B, and C. In Panels D and E, FTF stands for first-time fund, FSF for fund of seasoned GP, and Re-up for reinvestment in a new fund by a GP in which the LP had previously invested. The dependent variables are the importance of each fund selection criterion; independent variables are defined in section 3.1 to 3.3. Significance levels in regressions are indicated by a (1%), b (5%), and c (10%).

Panel A: Criteria for selecting a first-time fund

	Largely irrelevant	Somewhat important	Very important	Crucial	*Main criterion*	*z-score*	
						Mean	*St.D.*
Partners' previous PE successes	1%	6%	34%	59%	56%	1.17	0.62
Proposed investment strategy	0%	10%	48%	42%	15%	0.98	0.53
Quality of partners' network	1%	23%	51%	25%	2%	0.65	0.67
Partners' experience working together	3%	21%	55%	21%	9%	0.60	0.71
Level and structure of fees	6%	30%	51%	12%	3%	0.34	0.71
Provides a desired exposure	7%	42%	34%	18%	6%	0.24	0.77
The fund's size	11%	42%	40%	7%	0%	0.06	0.72
Partners' previous non-PE successes	12%	43%	37%	7%	3%	0.03	0.74
Quality of partners' education	22%	58%	17%	3%	0%	-0.36	0.58
Commitments by top LPs	32%	47%	19%	3%	0%	-0.43	0.74
Better access to follow-on funds	43%	41%	15%	1%	0%	-0.62	0.68
Co-investment opportunities	53%	30%	12%	5%	1%	-0.66	0.81
Advisor/gatekeeper opinion	60%	28%	7%	4%	0%	-0.81	0.75
Generate business for other divisions	87%	9%	4%	0%	0%	-1.18	0.51

Panel B: Criteria to select a new seasoned fund

	Largely irrelevant	Somewhat important	Very important	Crucial	*Main criterion*	*z-score*	
						Mean	*St.D.*
Partners' team stability	0%	10%	53%	36%	12%	0.85	0.67
The proposed investment strategy	2%	10%	55%	33%	12%	0.76	0.61
Reported aggregate multiple	0%	12%	64%	23%	13%	0.66	0.59
Reported aggregate IRR	2%	18%	55%	25%	18%	0.58	0.70
The GP's reputation	2%	25%	43%	30%	12%	0.58	0.75
Quality of partners' network	3%	20%	57%	21%	3%	0.51	0.73
Level and structure of fees	6%	33%	50%	11%	1%	0.19	0.70
Valuation of unrealized investments	5%	42%	46%	7%	1%	0.08	0.63
Change in fund size	10%	36%	42%	11%	0%	0.05	0.84
Provides a desired exposure	9%	39%	40%	11%	2%	0.05	0.80
The fund's size	7%	40%	46%	7%	0%	0.04	0.73
Renewed LP commitments	4%	44%	49%	4%	0%	0.03	0.64
Commitments by top LPs	33%	39%	27%	1%	0%	-0.54	0.80
Quality of partners' education	24%	61%	14%	1%	0%	-0.64	0.64
Co-investment opportunities	58%	23%	12%	7%	1%	-0.86	0.98
Advisor/gatekeeper opinion	62%	23%	10%	5%	2%	-1.01	0.92
Generate business for other divisions	79%	15%	7%	0%	0%	-1.31	0.62

Panel C: Criteria to re-invest in a seasoned fund

	Largely irrelevant	Somewhat important	Very important	Crucial	*Main criterion*	*z-score*	
						Mean	*St.D.*
Partners' team stability	0%	4%	61%	36%	13%	1.00	0.54
The proposed investment strategy	2%	7%	64%	26%	12%	0.81	0.63
Reported aggregate multiple	4%	12%	61%	23%	9%	0.67	0.71
Reported aggregate IRR	1%	15%	64%	20%	19%	0.66	0.65
Quality of partners' network	4%	21%	58%	18%	4%	0.53	0.72
The GP's reputation	6%	32%	36%	26%	13%	0.46	0.83
Level and structure of fees	5%	36%	49%	11%	2%	0.27	0.73
Quality of GP reporting	3%	40%	49%	8%	1%	0.22	0.62
Change in fund size	8%	35%	42%	15%	1%	0.21	0.89
Valuation of unrealized investments	7%	36%	50%	7%	1%	0.16	0.67
The fund's size	6%	46%	40%	8%	0%	0.09	0.72
Provides a desired exposure	12%	40%	40%	7%	1%	0.01	0.84
Renewed LP commitments	12%	50%	36%	2%	0%	-0.15	0.72
Commitments by top LPs	30%	41%	27%	2%	2%	-0.43	0.77
Quality of partners' education	32%	50%	16%	2%	0%	-0.60	0.64
Syndication quality	40%	45%	13%	2%	0%	-0.72	0.69
Co-investment opportunities	60%	24%	13%	3%	2%	-0.89	0.94
Advisor/gatekeeper opinion	65%	17%	13%	5%	3%	-0.92	0.93
Generate business for other divisions	85%	10%	5%	0%	0%	-1.37	0.54

Panel D: Summary table for OLS regressions – Dependent variable is the z-score of a criterion's rating

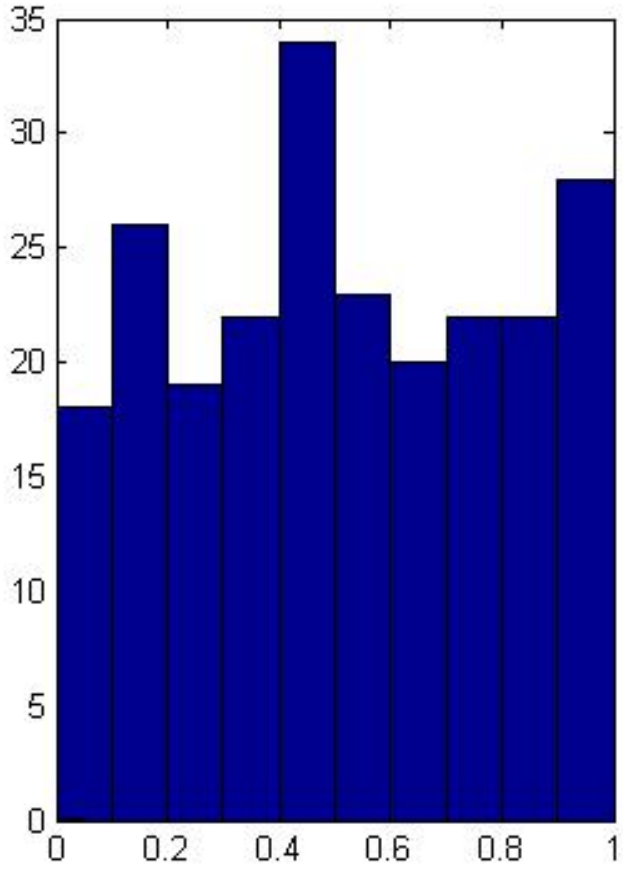
	t-statistics obtained from OLS regressions	LP size	Pension Fund	Fund of funds	Endow-ment	North America
FTF	Provides a desired exposure	4.22	-2.39	-2.04	-3.08	-2.50
FSF	The proposed investment strategy	3.76	1.19	-2.57	-2.93	-2.09
FSF	Provides a desired exposure	3.51	-2.11	-3.22	-1.96	-2.97
FSF	Renewed LP commitments	1.39	-2.66	-0.84	-0.34	-0.29
Re-up	Co-investment opportunities	-1.50	1.46	-2.60	-1.70	-2.29
FTF	Partners' experience working together	-0.46	2.66	2.44	1.68	1.10
FTF	Quality of partners' education	-2.05	-0.43	1.93	2.52	1.13
FTF	Better access to follow-on funds	-1.96	-0.76	1.49	2.41	0.45
FSF	Partners' team stability	1.59	1.40	2.63	0.38	2.31
Re-up	Generate business for other division	-3.91	-0.35	-1.49	-0.11	0.52
FTF	Proposed investment strategy	5.06	-0.79	-1.52	-0.59	-1.79
FTF	The fund's size	-1.35	2.29	-0.50	0.19	0.39
FTF	Generate business for other division	-3.67	0.10	-1.82	-0.77	0.13
FSF	Reported aggregate IRR	0.83	-1.11	1.51	3.23	1.14
FSF	Quality of partners' education	-2.57	-0.02	1.50	0.94	1.39
FSF	Advisor/gatekeeper opinion	-0.88	-2.52	0.16	-1.05	-0.94
FSF	The fund's size	-0.91	2.81	-0.82	-0.91	-0.46
FSF	Valuation of unrealized investments	-1.19	2.21	0.36	1.83	0.33
FSF	Generate business for other division	-4.21	-0.30	-0.68	0.01	0.83
Re-up	Reported aggregate IRR	0.54	-1.40	0.82	2.03	1.23
Re-up	Quality of partners' network	2.59	-1.79	1.28	1.58	1.21
Re-up	The GP's reputation	1.20	-1.20	0.31	-0.17	0.30
Re-up	Partners' team stability	2.41	0.87	1.62	0.02	0.68
Re-up	Advisor/gatekeeper opinion	-2.37	0.38	1.38	-0.74	-0.53
Re-up	The proposed investment strategy	3.17	-1.05	-0.86	-1.31	-1.16
Re-up	The fund's size	-1.39	2.35	-0.87	-0.47	-0.40
Re-up	Provides a desired exposure	1.90	-1.98	-0.94	-0.79	-1.85
Re-up	Valuation of unrealized investments	-1.09	2.36	0.65	1.55	0.71
	Number of significant t-statistics (5% level test)	14	11	6	6	5

Panel E: Summary table for 22 (out of 34) ordered Probit regressions

t-statistics obtained from ordered Probit regressions	LP size	Pension Fund	Fund of funds	Endow-ment	North America	Parent AUM
Criteria to select a first-time fund						
Partners' previous PE successes	*1.11*	*0.00*	*0.80*	*0.09*	*-0.28*	*-2.62* [a]
Partners' experience of working together	*2.63* [a]	*1.38*	*0.97*	*1.90*	*0.21*	*-1.16*
Quality of partners' network	*-0.71*	*1.11*	*-0.16*	*0.68*	*0.21*	*-2.49* [b]
The fund's size	*2.41* [b]	*-1.04*	*-0.14*	*0.62*	*-0.36*	*-1.93*
Provides a desired exposure	*-2.07* [b]	*-2.26* [b]	*-3.19* [a]	*-0.18*	*-0.70*	*0.96*
Criteria to select a new seasoned fund						
Reported aggregate IRR	*-1.06*	*1.05*	*3.05* [a]	*-0.18*	*-0.18*	*-1.39*
Quality of partners' network	*0.44*	*-0.28*	*0.61*	*1.32*	*-0.03*	*-2.09* [b]
The GP's reputation	*-0.97*	*-0.70*	*-0.94*	*-0.55*	*2.10* [b]	*-0.37*
The proposed investment strategy	*1.45*	*-2.35* [b]	*-2.19* [b]	*0.97*	*-1.30*	*-0.81*
The fund's size	*4.23* [a]	*-0.88*	*-0.34*	*1.65*	*0.37*	*-3.11* [a]
Increase in fund size (vs. previous fund)	*2.76* [a]	*0.65*	*1.52*	*1.49*	*-0.87*	*-1.19*
Valuation of unrealized investments	*2.87* [a]	*-0.14*	*0.53*	*0.47*	*-1.04*	*-0.72*
Renewed commitment by existing LPs	*-2.36* [b]	*-1.55*	*-0.50*	*-0.06*	*0.90*	*2.49* [b]
Criteria to re-invest in a seasoned fund						
Reported aggregate IRR	*0.73*	*0.15*	*2.40* [b]	*-0.70*	*0.33*	*-1.82*
Reported aggregate multiple	*3.31* [a]	*0.29*	*1.64*	*-0.91*	*-0.37*	*-0.93*
Quality of partners' network	*-1.07*	*0.60*	*1.96* [b]	*1.10*	*-0.35*	*-1.62*
The GP's reputation	*-1.18*	*0.24*	*0.29*	*-0.75*	*2.26* [b]	*-0.90*
Stability of the team at the partner level	*2.24* [b]	*0.51*	*0.63*	*2.22* [b]	*-1.23*	*0.09*
The proposed investment strategy	*0.74*	*-0.99*	*0.01*	*2.19* [b]	*-1.69*	*-0.01*
The fund's size	*4.01* [a]	*-1.31*	*0.06*	*1.62*	*0.53*	*-1.24*
Increase in fund size (vs. previous fund)	*3.10* [a]	*0.15*	*0.98*	*1.59*	*0.20*	*-0.63*
Valuation of unrealized investments	*3.53* [a]	*-0.69*	*0.78*	*-0.16*	*-0.33*	*0.11*
Number of significant t-statistics (5% level test)	12	2	5	2	2	5

Figure 1: Histogram of the Investor Effort Index

This figure reports the distribution of the Investor Effort Level defined in section 4.4.1.



Appendix Table

Panels A provides descriptive statistics for the criteria used in the decision to invest in first-time funds, which we examine in section 5.1. Panel B provides similar descriptives for the decision to re-invest in funds raised by a seasoned GP, that we examine in section 5.3. Panel C provides descriptives about co-investments, that we examine in Appendix A.

Panel A: Investing in first-time funds

	Obs.	Mean
Do you invest in first-time funds? (yes=1; no=0)	214	62%
If no, what is your main reason? *	48	
- No track record		65%
- Uncertainty on the team		25%
- It is corporate policy not to invest		13%
. Would you invest if the fees were lower? (yes=1; no=0)	60	8%
If yes, what are your reasons for investing in first-time funds?**	104	
- Expect these funds to outperform		57%
- Presence of a credible strategic partner		25%
- Presence of a credible special LP		25%
- Priority access to follow-up fund		23%
- Do not always invest for performance reasons		17%
- Sizeable GP own commitment		16%
. What is your main reason for investing in first-time funds?	103	
- Expect these funds to outperform		47%
- Presence of a credible strategic partner		15%
- Presence of a credible special LP		10%

* open question; ** multiple choices possible

Panel B: The re-investment decision

	Obs.	Mean
Have you ever refused to re-invest with a GP? (yes=1; no=0)	136	86%
What fraction of funds did you refuse to re-invest in over the last 5 years?	98	27%

Multiple choice variables	Always	Sometimes	Never	Main
Reasons for refusing to re-invest (136 observations)				
. The GP's performance had been disappointing	41%	50%	9%	56%
. Some key professionals/partners left the GP	20%	59%	21%	11%
. The GP deviated from their original strategy	19%	60%	21%	17%
. The fund's size increased too much	7%	63%	30%	

Panel C: Co-investment strategy

	Obs.	Mean
Have you ever been invited to co-invest? (yes=1; no=0)	213	80%
Fraction of the PE portfolio made of co-investments	166	5%
What are the most frequent motivations for rejecting invitations?*	72	
- Adverse Selection		47%
- Internal Policy		19%
- Too risky		33%
- Diversification issues		10%
- Lack of expertise		13%
If you have ever co-invested,		
. What is the fraction of invitations that are rejected	96	71%
. What are your firm's motivations for co-investing?**	97	
- Improve performance before fees (get invited to the best deals)		54%
- Reduce fees		41%
- Customize portfolio (adjust exposure to country, industry…)		44%
- Free-ride on GP due diligence		22%
. Which of the above criteria is your *main* motivation?	97	
- Improve performance before fees (get invited to the best deals)		46%
- Reduce fees		22%
- Customize portfolio (adjust exposure to country, industry…)		19%
- Free-ride on GP due diligence		4%

* open question; ** multiple choices possible